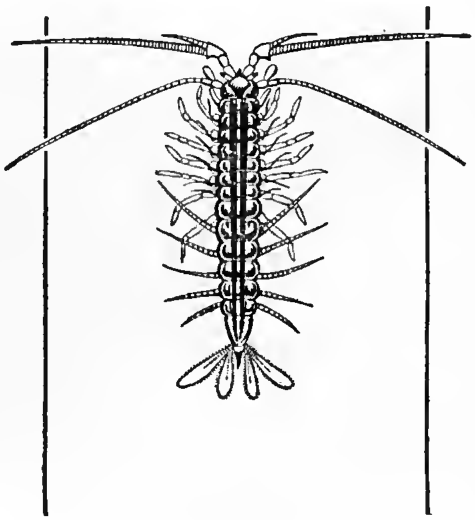
NEW SERIES Nos. 1–10

1952–1959

Records of the Queen Victoria Museum Launceston



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Records of the Queen Victoria Museum, Launceston

New Series Nos. 1–10

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RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

Rt. Hon. Sir Edward Nicholas Coventry Braddon P.C., K.C.M.G., 1829-1904

(Biographical Notes)

By

JOHN REYNOLDS

The Braddons are an old Cornish family. The first member recorded at Heralds' College is Stephen Braddon of Treworgrey, who sat as the member for Bosinney in Queen Elizabeth I's earliest Parliament, 1558-1563. His grandson, William Braddon, played a notable part in the unsettled times of the Civil Wars. He held the rank of commander in Cromwell's army and sat in Parliament in 1651 as the member for his native county. His epitaph might well be inscribed on the grave of his distant descendant, the subject of these notes, it reads

> 'In War and Peace I bore command
> Both Sword and Gown I wore.'

The next member of the family known to history is Laurence Braddon, a writer on political subjects. The mysterious death of the Earl of Essex in 1683 in the Tower of London engaged his interest. The Earl was imprisoned for his alleged part in the Rye House Plot; his death was reported as suicide. Laurence Braddon, a well-known pamphleteer, risked his neck and liberty by the persistence with which he sought to prove that the case was, in fact, one of political murder.

During the eighteenth, and early part of the nineteenth century, 'the Golden Age of the Country Gentlemen', the Braddons lived in quiet obscurity as small squires, vicars and professional men who married into other West Country families of their 'own station'. In the second decade of the nineteenth century one Henry Braddon of Skisdon Lodge broke away from the family tradition and married Fanny White, a vivacious and beautiful daughter of a gentleman of County Cavan. He was John White who was an historical and legal writer of some note in his day. One of his grandsons was probably the greatest of British journalists, John Thadeus Delane, who edited the London Times for thirty-six years (1841-1877). Henry Braddon was no 'Squire Western', for he was a highly cultivated solicitor and the author of a number of works on sporting subjects.

Two of the children of Henry and Fanny Braddon were destined to pursue notable careers far beyond the borders of Cornwall. The first was the subject of these notes, the Hon. Sir Edward Braddon, and the other the well-known popular novelist Mary Elizabeth Braddon (1837-1915). Edward Nicholas Coventry Braddon was born at Skisdon Lodge on 11 June, 1829. Very few facts of his boyhood and youth have been preserved. It is certain, however, that he inherited in full measure his family's love of country life and sports. Unlike most of the sons of the country gentry, he did not enter one of the ancient schools and Universities. He was educated privately, probably by some fine classical scholar and humanist. His father must have possessed considerable insight and understanding for he sent 'Nick'—as he was usually known—to the new University College in London. There he received the type of education exactly suited to his temperament, and for a career in commerce and administration.

In 1847, at the age of eighteen, young Braddon went to Calcutta to join the staff of a merchant's house owned by a relative. It was a familiar path to fame and fortune taken by energetic young Britishers in the nineteenth century. After ten years in the counting house sharpening his nimble wits in dealing with Asiatic business men, he was translated to congenial fields of action by the outbreak of the Great Mutiny. In its emergency the Government appointed this capable, restless young man to the dangerous post of Assistant-Commissioner in the Santhalia District. Passing from the strict letter of his instructions to maintain order, he raised a regiment and led it to battle in the campaign conduced by General Sir George Yule. Like his Cromwellian ancestor, his leadership was successful; he was decorated, mentioned in despatches, and thanked by the government of Bengal for 'energetic and timely action'.

After the suppression of the Mutiny Braddon settled down to an administrative career, receiving the appointment of Commissioner of Stamps and Excise in Oudh. During the next twenty years he occupied increasingly responsible positions in the financial administration of the great province. It is recorded that he did 'excellent service in the cause of departmental reform and placed the provincial finances on a firm basis, although faced with a heavy deficit at the outset due to the confusion resulting from the Mutiny'. In 1857 he married Amy G. Palmer and, some years after her death, Alice H. Smith (1876), who long survived him. There were two sons and four daughters of the first marriage. His second son, Hon. Sir Henry Yule Braddon, K.B.E., now living in Sydney, has had a distinguished career in commerce.

In India Braddon found full scope for the development of his sporting instincts. He played polo and hunted in many parts of the sub-continent. These experiences

he described in a book of reminiscence—'Twenty Years of Shikar' (1895). With a lively pen he tells 'good stories of hunting tigers, elephants, panthers, and many fearsome fowl!' (from a review). In an earlier book 'Life in India' (1872) he vividly describes the contemporary scene as witnessed by an Anglo-Indian official. Both these works are long out of print but they have a freshness which makes them always readable.

After thirty years of Indian life and climate Braddon retired (1878) on a well-earned pension. Retirement is hardly the term for this period because he was to climb to heights in public life undreamt by an Indian provincial official. He chose Leith, near Devonport, (Tasmania) for his new home. Acquiring a small farm in an attractive situation, he built a bungalow having wide verandahs, which he named Treglith; unfortunately this pleasant home was destroyed by fire towards the end of his life. It might be reasonable to assume that the pioneering townsmen, farmers and 'back blocks' people of the Tasmanian North-West Coastal districts would hardly take kindly to an autocratic ex-Indian official. Such an assumption proved entirely unfounded in fact. The local people were delighted to discover the newcomer was no aloof and frigid 'Pukka Sahib'; his wife was full of a charm which endeared her to all. He plunged into the life of the community with a boyish zest. He was the life of cricket matches, hunting and fishing expeditions and of the marathon dances which usually followed them. On one of his hunting expeditions, in spite of his excellent marksmanship, he 'winged' a youth who is now the Honorable Alexander Lillico, M.L.C. (Member for Mersey, Legislative Council).

For almost a quarter of a century Braddon was a familiar figure riding a white horse along the roads and tracks of North Western Tasmania. His appearance was striking. He was a wiry man of medium height, his skin was bronzed from exposure, his eyes deep blue and piercing. He cultivated a large grey moustache, which was generally unruly as his long silky hair, upon which a wide straw hat seemed to perch unsteadily. His ordinary dress consisted of a blue velvet riding coat, a white waistcoat and light corduroy trousers; a large carnation or rose usually hung from his button hole.

In 1879 the West Devon seat in the Tasmanian House of Assembly became vacant, rendering a bye-election necessary. In spite of Braddon's brief residence in the district he was elected by an overwhelming majority and entered upon his eventful political career. He was returned at all subsequent elections until he retired from State politics in 1900 to enter the first Federal Parliament. His liberalism and his unshakable views on Free Trade commended him to the majority of the electors. Although as a young man he was a keen follower of John Bright and the Manchester School of Liberalism, he clearly recognised that these ideas did not apply in new pioneering communities. He clearly recognised that 'laissez faire' had no place where Governments had to organise and direct many activities. On the other hand, his views did not include paternalism, rather he believed the State should protect the individual from abuses and tyrannies and provide every opportunity for individual development. Even Braddon's opponents, the conservatives and socialists, admired the persistence with which he fought for progressive developmental policies. The people of the North-West Coast found him an uncompromising fighter for their own interests. An obituary notice in the North-Western Advocate and Emu Bay Times (Feb. 3, 1904), said (he) 'was a terror to the Hobart clique who at one time sought to dominate the colony'.

Braddon was an immediate success in Parliament. He was a fluent, logical and well-informed speaker who quickly came to the point of what he had to say.

Joining the 'Liberal' Opposition he found plenty of scope for talents in attacking the unprogressive, unimaginative, policies of the conservative governments which held office between 1879 and 1887. The little change in their personnel caused them to be called the 'Continuous Ministry'. Thomas Reiby and Phillip Oakley Fysh, (later Sir), the old Liberal leaders, eventually made way for this forcible new recruit. In 1885 Braddon became Leader of the Opposition. Eighteen months later he moved a successful want of confidence motion which led to the resignation of the Agnew Government, the last of the Continuous Ministries. For some time he had suffered from heart strain and he did not form a Government. Instead he entered the Second Fysh administration as Minister for Lands and Works. A few months later, probably for health reasons, he was appointed (29th October, 1888) Agent-General for Tasmania in London in succession to Hon. (later Sir) Adye Douglas, who had resigned. Braddon held this difficult office for five years during a period of financial depression. He experienced the greatest difficulty in arranging loans and raising capital for Tasmanian development. In 1891 Braddon received the well earned honour of knighthood of the Most Distinguished Order of St. Michael and St. George (K.C.M.G.)

On his return to Tasmania, Braddon found his greatest life's task before him. The failure of the Bank of Van Diemen's Land (August, 1891), the Colony's principal financial institution, and the imposition of customs duties on Tasmanian produce entering N.S. Wales had produced an economic crisis of the first magnitude. Both the Fysh and Dobson Governments had failed to take any effective steps to restore confidence and prevent the spread of bankruptcy and unemployment. Braddon was re-elected for West Devon and took his seat as undisputed Leader of the Opposition when the eleventh Parliament opened on 27th February, 1894. On the resignation of the Dobson Ministry he became Premier on the 14th April that year. He remained in office until October 12th, 1899, when he was defeated in committee by some unreliable supporters. It was the longest term of office held by any previous Premier of Tasmania; it has only been exceeded by the present Premier, Hon. Robert Cosgrove.

Braddon's Ministry is believed to have been the first elected by a party caucus in Australia. His old colleagues Fysh, Reiby and Andrew Inglis Clark were included because without them he could not have formed a Government. Braddon set to work with characteristic energy. Accepting no office himself, he was free to deal with policy and its implementation; only in the last year of office (1899) did he become Treasurer.

His ruthless retrenchment of the Civil Service and the reduction of salaries have long been remembered as the 'Braddon Axe'. It was only with the greatest difficulty that his Attorney-General (A. I. Clark) succeeded in preventing the abolition of the young University of Tasmania. Braddon was too wise to rely upon reduction of expenditure to restore economic health. He vigorously applied a policy of development in all of the settled parts of the colony. Amongst his larger schemes were the extension of the railway to Burnie, the rail connection of Strahan and Zeehan, the building of the Emu Bay Railway with British capital and the establishment of large scale mining and smelting operations at Queenstown and Zeehan. His new roads and harbours made possible the development of the potato and apple growing industries. When he left office the Treasury accounts were showing a surplus, the trade balance was favourable, business confidence was restored and the employment situation greatly improved. The Government had legislated in many fields. It had passed the Eight Hours Working Day Bill and had

introduced proportional representation for the city electorates of Hobart and Launceston. When this method was introduced in the 1897 General Elections it caused international interest because it was the largest scale upon which it had ever been applied. Braddon's Government gave strong and consistent support to the Federation Movement, a fact which had an important influence on its consummation.

A fierce light plays upon the characters and actions of Australian Prime Ministers and Premiers. In the passing of over half a century it has not dimmed in the case of Braddon. As recently as March 1952 some of his actions were strongly criticised in the Tasmanian House of Assembly. Braddon was not a complex political character. Enough has been said of his courage, industry, high aims and fine intellect. To some extent he blunted these fine weapons by his ruthlessness, and his management of people by chicane and flattery. The following epigram, which won a prize in a competition conducted by the Hobart journal 'Clipper' tells us how he was seen by keen contemporary political eyes . . . .

BRADDON.

'Keen eyed, quick witted, a man who knows
The way to wheedle friends and vanquish foes.'

(September 30th, 1899.)

It was Braddon's part in the Federation Movement which gave him a niche in Australian history. His earliest association with the movement was leader of the Tasmanian delegation to the second session of the Federal Council of Australasia (1888). The movement ran into the shallows after the 1891 Convention, and it was not until the Premier's Conference in Hobart (January, 1895) over which he presided, that it got under way once more. As leader of the Tasmanian delegation to the 1897-98 Convention he was a doughty fighter for the rights and the financial safety of the smaller States in the Federation. He told the Adelaide session (21st April, 1897) quite bluntly that the surrender of customs duties by Tasmania to the Commonwealth, 'would effectually bar entry into Federation'. To Mr. George Reid's suggestion that 'we will pay you £20,000 a year if you are hard up', he fiercely replied 'this is the liberality of words only. I should not like to have to depend upon liberality of that sort. We of Tasmania do not seek to come into Federation as paupers, trusting to the charitable dole of New South Wales'. (Convention proceedings page 1066). The financial problem of the proposed Federation seemed politically insoluble, until he proposed the now famous Braddon Clause. The Clause originally provided that the Commonwealth could only spend four-twentieths of its revenue on the exercise of its original powers and transferred services, the remaining sixteen-twentieths being returned to the States. This clause was bitterly attacked by the Sydney press who dubbed it the 'Braddon Blot'. Nevertheless, it was adopted in principle but its operation was limited for a period of ten years.

Braddon attended Queen Victoria's Diamond Jubilee Celebrations in London and afterwards he represented Tasmania at the Conference between the Colonial Premiers and the powerful Secretary of State for the Colonies, Rt. Hon. Joseph Chamberlain. At the conference he expressed his faith in Imperial Federation as an ideal means of governing a great Empire. During the Conference, along with the other Premiers, he was created a Privy Councillor. On his return from England he attended the last sessions of the Convention and then took a leading part in the campaign for adoption of the Commonwealth Bill by the Tasmanian electors. In

spite of his seventy years he entered into the campaign with a zest equal to any of the young Federalists. His address to the electors on the occasion of the second referendum (27th July, 1899) given in full might have been written by an ardent young Australian Federalist and Nationalist.

THE COMMONWEALTH ELECTION

ELECTORS OF TASMANIA.

On the 3rd June, 1898, you declared by a four to one vote in favour of the '*Federal Constitution*' adopted by the Melbourne Convention: on the 27th of this month you will be asked to ratify this decision at the Polls, and prove to the world your abundant faith in the cause of Australian nationhood.

Your vote is required on the 27th instant to approve of some few amendments to that Bill, which the popular voice passed by an overwhelming majority on the 3rd June, 1898. These Amendments have been adopted by your brothers of New South Wales and South Australia: only three of them concern Tasmania in any way, and those three are such as you may accept without demur. In the name of our common brotherhood I ask you to be one with the electors of Australia who have led the way in this final Referendum. For the sake of that broader and loftier national life that Federation will assure to us: for the sake of the general welfare which will come with Federation as the consequence of expanded and unshackled trade, and widened industrial development: for the sake of the brotherly amity and national strength that will come with Australian union, I appeal to you to let your voice be heard through the ballot-box on the 27th July, and, by voting 'aye' in sufficient numbers, to feel that you are of those who may justly pride themselves as the builders of a Commonwealth that shall stand without shame side by side with the Powers of the world.

Electors and brother Colonists, do not let apathy steal from you the opportunity of making Tasmania's voice heard through these Southern lands in the epoch-making Referendum of this month. See that your vote in this year largely exceeds in number that of 1898, as do the votes taken in New South Wales and South Australia: see that this cause, which is yours—the People's cause—is carried to a glorious triumph on this coming 27th July.

Hobart, 15th July, 1899. E. N. C. BRADDON.

At the first Federal Elections held in 1901, Braddon was elected by the Tasmanian electors voting as a whole, to a seat in the new House of Representatives. He was returned for the electorate of Wilmot in the Second Elections (1903). Despite his advancing years he held the position of Deputy Leader of the Opposition. In the absence of his Leader, the witty, redoubtable George Houston Reid, (afterwards Sir), he successfully led the party in tactics and debate against Government leaders which included Edmund Barton, Charles C. Kingston, Alfred Deakin and Sir William Lyne. Death came suddenly to Braddon. He died at Hobart on February 2nd, 1904, and was buried in the little cemetery on the banks of the River Forth, near Leith.

The Commonwealth Jubilee Celebrations included ceremonies in honour of a leading Federalist in each of the States. On Sunday afternoon, May 12th, 1951, an impressive, well-attended ceremony was held in the Devonport Town Hall to honour Braddon's memory. Interest was aroused by a large coloured photograph taken in his prime of life, which was prominently exhibited on the stage. The programme of the ceremony was as follows:—

COMMONWEALTH JUBILEE, 1901-1951.

FOUNDERS OF FEDERATION.

TRIBUTE TO

SIR EDWARD BRADDON,

PREMIER OF TASMANIA, 1894-1899.

DEVONPORT TOWN HALL.

Sunday, 27th May, 1951, 3.15 p.m.

1. Introduction and Welcome.
   The Warden, Mr. M. F. Holman.
2. Tribute to Sir Edward Braddon.
   Minister for Lands & Works, Hon. E. E. Reece, M.H.A.
3. Message from His Excellency the Administrator, Sir John Morris, Kt.
4. Message from Sir Henry Braddon.
5. Tasmania's contribution to Federation.
   Mr. J. Reynolds.
6. Song—"Land of Hope and Glory."
   Gwenyth Dixon.

Later in that cold, wet afternoon, wreaths were laid on Braddon's grave at the Forth Cemetery. They were tributes to his memory by the Government of Tasmania, the people of the district amongst whom he lived for a quarter of a century, the Commonwealth Jubilee Committee and the Australian Broadcasting Commission. The surrounding bush was quiet and those present stood in silence during the ceremony. It was easy to see those amongst the gathering who remembered the fine old Cornish gentleman who was laid to rest forty-seven years before.

L. G. SHEA, Government Printer, Tasmania

New Series, No. 2. 1st June, 1953.

RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

Results of the Harvard-Adelaide Universities Anthropological Expedition, 1938-1939

Growth of a People: Formation and Development of a Hybrid Aboriginal and White Stock on the Islands of Bass Strait, Tasmania, 1815-1949

By

NORMAN B. TINDALE

(Ethnologist, South Australian Museum)

5 PLATES AND 3 TEXT FIGURES

CONTENTS

Summary

A dozen white men from the British Isles, living as sealers on the islands in Bass Strait, between Australia and Tasmania, in the first half of the 19th century, took to wife aboriginal women from Tasmania and from South Eastern Australia. Living a hard and lawless existence on these islands they nevertheless built small huts, planted gardens, hunted seals and gathered mutton birds. They reared families, sometimes large, of hybrid children. Their descendants, married together for several generations, are the Bass Strait Islanders.

Details are given of the growth of this population of di- and tri- hybrids to the fifth and the beginning of the sixth generation of crossing. The account is supported by a relatively complete list of people together with dates of birth and death and such details as will enable their genealogical relationships to be understood.

Birth and death registers, school admission lists and baptismal records have furnished details which, added to the genealogies gathered from the inhabitants on Cape Barren Island by interrogation, have come together to furnish a tolerably complete record of the Islanders up to the year 1939, together with some additional details and statistics complete to 1949.

Today there exists a group of approximately 350 people bearing the hybrid strain of the Bass Strait Islanders; most of them are on Cape Barren Island but many others are dispersed in Tasmania and elsewhere.

In the sixth generation, now beginning, they will tend to become a Tasmanian x Australian x white trihybrid type whose mean constitution can be expressed by the formula $\frac{22 \text{ Tas } 6 \text{ Aus } 36 \text{ white.}}{64}$

This population grew up rather rapidly from an initial group of thirty first generation hybrids but its rate of increase seems to be declining so that by 1960 its numbers may, if present conditions continue, become stabilised at less than 400. Details are given suggesting that population growth of the Islanders has followed a trend which can be expressed in a logistic curve of the Pearl-Reed type.

Introduction

Not often is it possible to obtain information about a whole new human population, brought into being by hybridisation, with details of their history sufficiently complete to enable appreciation of the whole pattern of development.

One of the items of study allotted to the present writer on the program of field sudies of the Harvard-Adelaide Universities Anthropological Expedition 1938-1939, was a survey of the constitution and development in Australia and Tasmania of the full-blooded and hybrid aboriginal populations. The results of this Expedition are being published, as opportunities offer, in a series of independent papers.

The present contribution provides some information on the population, racial constitution, vital statistics and present status of the Tasmanian hybrid peoples living on the islands of Bass Straits. Appended is a list of the native people of the Islands and such information as is relevant for the studies made by the Expedition.

This study is part of a larger series of observations made on the constitution and development of the mixed-blood populations of Australia. J. B. Birdsell was responsible for physical examinations of the mixed-bloods. Details of his work are

to be published elsewhere. The present writer was concerned with the gathering of population data and detailed genealogical information, such as is brought together in this account.

The work was backed by a research grant from the Carnegie Corporation of New York jointly to the Department of Anthropology at Harvard University and to the University of Adelaide. Its publication has generously been assured by the authorities of the Queen Victoria Museum, Launceston, to whom the members of the Expedition offer their sincere thanks.

The visits to Cape Barren Island were made possible through the courtesy of the Government of Tasmania and the co-operation of the Royal Society of Tasmania and many interested persons, particularly the late Dr. A. N. Lewis, who acted as local representative for the Expedition. The author extends grateful acknowledgment of the help of Mr. N. Hill (Commissioner of Police), Mr. C. A. Ward (Registrar General), Mr. C. L. Willes (Inspector of Social Services), Dr. J. Pearson (Royal Society of Tasmania), Miss I. Thomson (Director of the Queen Victoria Museum), the late Mr. A. L. Meston and Mr. A. H. Collis.

In 1939 and again in 1949 the Expedition was fortunate in enlisting the wholehearted co-operation of the late Mr. Julian Clifford Everett, one of the principal Cape Barren Islanders, and it was due to his organising ability, interest, and determination that almost every available person on Cape Barren Island submitted gracefully in 1939 to the inconveniences of a physical examination and to an often extended interrogation regarding family history, &c., and came forward again to assist in checking the information in 1949. The relative completeness of the data submitted is due to the courtesy of the islanders and their associates and to their anxiety that even the results of unofficial unions should not go unchronicled. The officers of the Department of the Registrar of Births, Deaths and Marriages at Hobart, and on Flinders Island and the officers of the Social Welfare Department gave all assistance in their power to make the visits to the island successful and subsequently collated data to help make the results as far as possible complete.

The present author also is particularly indebted to Mrs. F. H. Archer, whose husband was for many years the Police Officer on Cape Barren Island, and who can look back on over forty years residence there. Her intimate knowledge of the people was at our disposal and proved invaluable.

The first visit to Tasmania was made by Mr. and Mrs. J. B. Birdsell and the writer, accompanied by Mrs. D. M. Tindale, who acted as recorder, during January and February 1939. The author subsequently with the help of the Registrar's staff began searches in old Birth and Death Registers preserved at Hobart. The collation of data was hampered by the War, during which both observers were otherwise engaged on military duties, and it was not till 1947 that all the data from registers could be completely assembled. The records were then, in rough form, taken back to the Flinders Group in late January and early February 1949 for a close check. Opportunity was then taken of adding to the study some information covering the decade 1939-1949. To facilitate comparison with other phrases of the work of the Harvard-Adelaide Expedition all the records are pointed to the base date of 31 January 1939.

Presentation of the data in this paper is wholly the work of the present writer; therefore any deficiencies in it are his own. Any merits it may have owe much to the co-operation of his fellow researcher, J. B. Birdsell and the stimulus of the many discussions which enriched the year and a half of field work shared with him. Some theoretical aspects of the work of the Expedition on the Tasmanian people already have been discussed by Birdsell (1949) in a paper in Volume II of these Records.

The Hybrid Tasmanians of Bass Strait Islands

When Tasmania was settled at the beginning of the 19th century it was found to be occupied by a native population of simple hunting peoples, about 2000 in number, the Tasmanian aborigines. In conflict with the white settlers occupying their country, and afflicted grievously by the new diseases unwittingly introduced by the colonists, the Tasmanians died out, the last one passing less than three-quarters of a century after the period of active colonisation had begun. However they left behind some hybrid descendants. From an originally small group of nine Tasmanian aboriginal women, four Australian aboriginal women and one Maori woman from New Zealand, who were associated with some twelve white sealers of North-Western European origin in the Bass Strait Islands in the early 19th century, there grew up a population of rather inbred mixed people who in 1939 were in the main in the fourth and fifth generations of crossing.

The details of the constitution of this population, its size and distribution is outlined in the following pages.

Definitions of Notations

The following short notations have been adopted to facilitate the definition of some of the various crosses encountered:—

Pre-Crossing	Tas	Tasmanian aboriginal person.
	Aus	Australian aboriginal person.
	White	Person of European descent.
1st generation hybrids	F_1 Tas	The first generation cross from the union of a Tasmanian aboriginal woman and a white of European descent.
	F_1 Aus	The first generation cross from the union of an Australian aboriginal woman and a white of European descent.
2nd generation hybrids	F_2 Tas	The second cross resulting from the union of F_1 Tas and F_1 Tas.
	F_2 Aus	The second cross where F_1 Aus unites with F_1 Aus.
	$^1/_4$ Tas	The second generation when F_1 Tas unites with white.
	$^1/_4$ Aus	The second generation when F_1 Aus unites with white.
	F_1 Tas x F_1 Aus	The trihybrid type resulting when F_1 Tas unites with F_1 Aus.
3rd generation hybrids	F_3 Tas	The third generation cross from the union of F_2 Tas and F_2 Tas.
	$^3/_8$ Tas	When F_2 Tas unites with $^1/_4$ Tas.
	$^2/_8$ Tas	When F_2 Tas unites with white.
	$^1/_8$ Tas	When $^1/_4$ Tas unites with white.
4th generation hybrids	Fx Tas	The cross resulting from the union of F_2 Tas and F_3 Tas.
	$^2/_{16}$ Tas	When $^2/_8$ Tas unites with white.

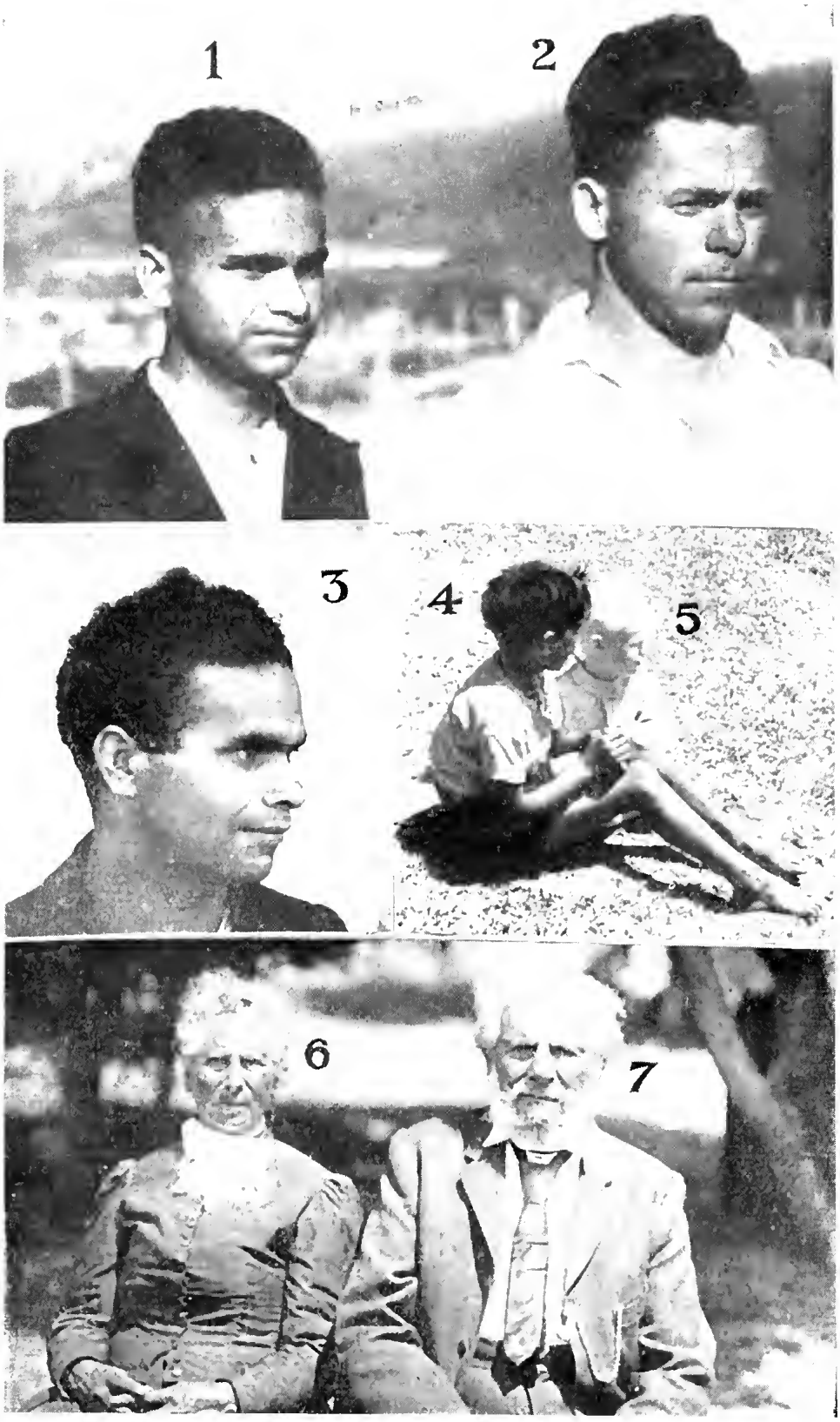


PLATE I

General Appearance of a Tasmanian Hybrid

For the present purpose it is sufficient to indicate that the average Islander is of generally sallow complexion; a majority fall within the range of European skin colour. The eyes are brown and of rather characteristic appearance. The stature is moderate, build intermediate. The hair ranges from low-waved to crisply curled; only a single individual (Plate I fig. 1 and 3) in the 4th generation, who is a $^{7}/_{16}$ Tasmanian, appears to present a rather marked degree of segregation of gene characters considered to be Tasmanian in origin. Text figure 1 illustrates his descent from five different Tasmanian lines.

A detailed description of the physical appearance and proportions of the various hybrid types must await Birdsell's analysis. The discussion of problems of anthropometric interest brought to light by our studies are being set out in detailed studies by him. The range of variation in appearance seems high and the relatively close line breeding seems to have brought to light some instances of albinism (Plate I fig. 5) &c. One family line has diminished by reason of a tendency to tuberculosis; in the main they seem a healthy community now overcrowded in the areas upon which they live.

The White Men

Some details are available about the white men who contributed to the beginnings of the hybrid population of the Bass Strait Islands. White husband of Nimarana, a full-blooded Tasmanian women was John Thomas (Long Tom). He had by her three F_1 Tasmanian children. Two of these, a boy and a girl, remained in the Bass Strait Islands and produced families; a third son left Tasmania and was not heard from again. Thomas, wife, and two half-caste children are mentioned in a contemporary document as being on Flinders Island in January 1832. Malcolm (1920) who saw the F_1 Tasmanian son, Phillip Thomas in 1912, described him as having light-brown eyes, light-brown skin and grey curly hair. Plate I fig. 7 shows Phillip Thomas and Plate I fig. 6 his F_1 Tasmanian sister, Nance Mansell (Thomas).

Henry Maynard, a white sealer, had two aboriginal wives, one a Tasmanian aboriginal, the other an Australian aboriginal woman from Victoria, long known as "Granny" to her descendants. She was described as a "real New Hollander". By the Tasmanian woman, who died between 1840 and 1843, he had two F_1 Tasmanian children, and by the second wife eleven F_1 Australians.

Burwood (better known as Smith) had a Tasmanian full blood woman Sarah, by whom he had five F_1 Tasmanian children (four of whom lived to produce families. John, one of these F_1 Tasmanian sons, is stated to have had "frizzly" hair. The portrait of a daughter, Mary Ann, F_1 Tasmanian, exists, showing her together with her husband, an educated full-blooded Tasmanian aboriginal named Walter George Arthur. Descendants of a third F_1 Tasmanian daughter, Fanny, are well known in the Nicholls Rivulet District, Tasmania. It was Fanny who sang the only Tasmanian aboriginal songs which have been preserved on the gramophone. Plate III fig. 3 shows Fanny (F_1 Tasmanian) with a white man named Smith (Plate III fig. 4) either her husband William Smith, or her father Burwood, also known as Smith.

Sam Bligh, a white man, who is called Blyth or Blythe in the George Town Death Register, had as wife a Victorian aboriginal. She had been a cripple from birth and had a bent right ankle so that she always walked on the front of the toes

PLATE II

of her right foot. By her Sam had two F_1 Australian daughters, both of whom have left descendants. One of them, Eliza, was born on Robbins Island, off the North West Tasmanian coast. She was tall and had very fine straight hair. Mr. J. A. Anderson, after a visit in 1920 wrote of Emma, the other F_1 Australian daughter, that she was then 83 years of age, and had quite a long white beard. He had first seen her in 1865 when, as a youth, he had just arrived on Flinders Island. She was then accompanied by her first son (Henry Maynard, F_2 Australian). It is of interest to note that the development of a beard, in old age, is characteristic of Southern Australian aboriginal women of the type called Murrayian by Birdsell (1949). Perhaps this item of information tends to confirm her designation as an F_1 Australian. Mr. Anderson remarked in the same letter that Capt. Bladon possessed a photograph of Emma; this has not yet been identified.

James Herbert Beeton (Beadon) who died 7 January 1867 at the age of 69 years (George Town Death Register) had a Tasmanian full blood wife. According to Mr. Barrett, an early white settler on Cape Barren Island, who remembered him, he was of sallow complexion and came of a family of jewellers, named Herberts, in England. Mr. J. A. Anderson in a letter to Bessie Robinson, dated 6 June 1926, says that he first knew "Jim Beadon" in 1865. Jim's Tasmanian wife is referred to in the letter by name as Emmerenna. Of Henry Beeton, one of the F_1 Tasmanian sons, an old undated photograph is in existence (Plate III fig. 1). This son was born in March 1838 and lived until 10 December 1913. His photograph may be compared with a later one published by Malcolm (1920, plate K, fig. 1).

James Everett, an Englishman, had two wives, the first a Tasmanian full blood, the second a Maori woman, Betty, from New Zealand. His name probably was an assumed one. When he died 3 June 1876, at 82 years of age, a memorial card was received by Jane Beeton from his family in England "who used a different name". Plate III fig. 5 shows James Everett in old age. An old photograph exists (Plate III fig. 2), of George Everett, his F_1 Tasmanian son. This photograph shows him as having straight brushed hair and deep-waved beard. There has been slight contemporary retouching of the eyebrows of George Everett and of the hair line of James Everett, but not sufficient to interfere with the value as records of these two photographs.

Edward Mansell, also known as Edward Sydney, who lived till 25 February 1876 and to an age of 74 years, married a Tasmanian full blood named Judy, also called Julia. Bishop Nixon (1857, p. 41) described how he formally married them in 1854. She died at Seal Island of old age. She was known to her grandson, William Henry Mansell (F_2 Tasmanian, born 30 August 1864) as Black Judy. The few spoken Tasmanian words and sentences which the present writer was able to take down in International Phonetic script were derived ultimately from Judy. Comparison with other known Tasmanian vocabularies suggests they may have greatest relationship with ones from Southern Tasmania, indicating that Black Judy may have come from that part of Tasmania. William Henry Mansell related to me how, when he was three years of age Judy and he had fished together. "A man was bitten by a snake. He cried out to Judy who spoke in her language; only I understood it and translated for her". She died in July 1867; her death was reported in the Hobart newspapers giving her age as 60 years.

Several other Bass Strait Island family names appeared on the Islands with whites who were married to F_1 generation hybrid women.

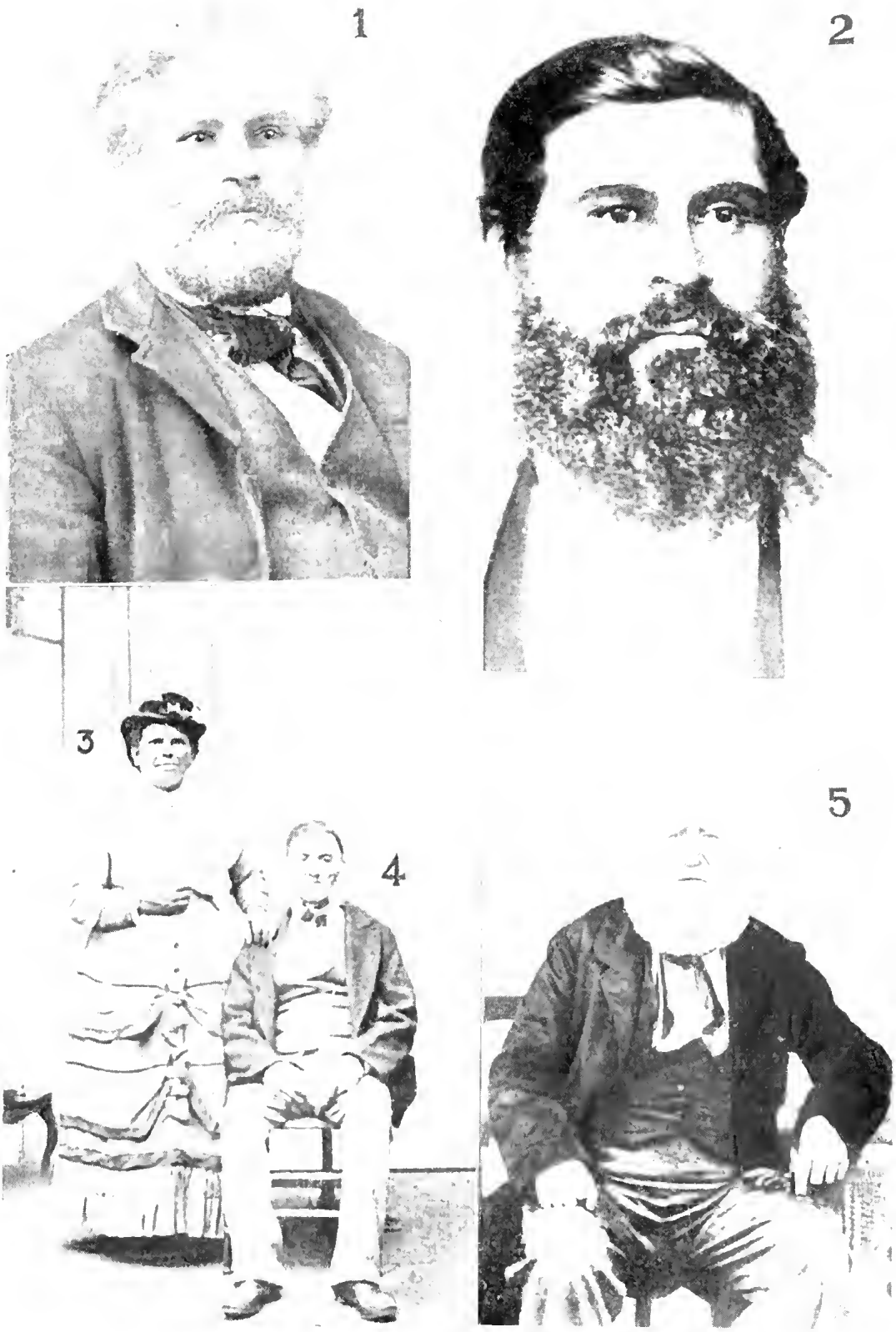


PLATE III

Andrew Armstrong, a Scotchman who once lived at Cape Portland, brought Jane Foster from Tasmania. She was claimed to be daughter of a full-blooded Australian woman and a white man named Foster. Mary Armstrong, ¾ Australian daughter of Andrew and Jane, born 10 February 1854, just 5 years before her mother's death, was interviewed by the present writer in 1939. She was a small "blue-eyed" lady of 85 years of age, presenting a physical type characteristic of ¾ Australians wherever they are met with in Southern Australia.

William Richard Brown, a white shipwright, was born about 1839. He was brought from Tasmania to Bass Strait Islands by John Riddle when only five years of age, and at one time used the surname Riddle. He lived at Long Beach on Cape Barren Island with three wives, first an F_1 Australian, Sarah Maynard, producing seven children, then with Mary Ann Smith, F_2 Tasmanian, by whom he had five children, and finally with Frances Lydia Maynard, F_2 Tasmanian, by whom he had a further seven children. There are many descendants.

John Summers, a short-statured Englishman, with a background of some education, had blue eyes. He was a baker by trade. His first wife was Lydia Maynard, F_1 Australian, and his second Margaret Smith, F_2 Tasmanian. Lines of descendants stem from each of these marriages.

The register of Bass Strait Islanders and associates given in Appendix A lists a few other white men and some women who have married with Islanders of later generations and so have contributed to the formation of the di- and tri- hybrid peoples which are the end products of the intermarriage of these first and second crosses, now continued into the fourth and fifth generations. The first child of the sixth generation has lately, 1948, been born.

James Munro or Munroe, a white sealer, who had established himself on Preservation Island about 1821 became known as 'King of the Sealers' and 'Governor of the Straits'. He cultivated vegetables for sale to passing ships, and had a flock of goats. His Tasmanian full blood wife was Jumbo, by whom he is said to have had children, but their fate after Munro's death in late 1844 is not known and for lack of information or of descendants to bear witness they are not listed or tabulated in the present study.

Meston (1947) considered Bonwick (1870) was in error in reporting half-caste descendants of Munro. If error there be it is not Bonwick's but must be linked with a paragraph in the Launceston Examiner for 29 January 1845 which says:—

> "About a month since, James Munroe, well known to masters of colonial vessels as "King of Preservation Island", died at the advanced age of eighty-two. He had been living for upwards of twenty-three years on the island "monarch of all he surveyed", in a state of the most thorough independence that mortality can attain. He possessed large herds of goats, pigs innumerable, and cultivated a small plot of ground from which he supplied himself, and occasionally vessels, with vegetables, &c. His companion was an aboriginal female, by whom he had a family. Munroe is supposed to have accumulated money, and before his death made a will, which is in possession of his relicts on the island, who are but little acquainted with the process necessary to give legal validity to their inheritance."

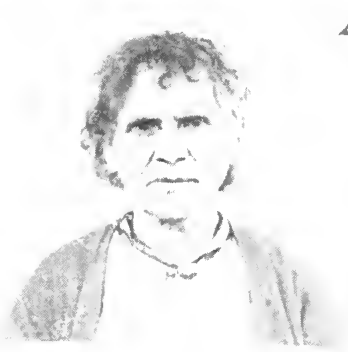


PLATE IV

Other than for Munro, who seems to have arrived in the Bass Strait about 1822 and whose age is given in the above paragraph as 82 years in 1845, age and year of birth is known for only four of the whites who founded the Bass Strait hybrid group, but these four were the principal progenitors. The dates range from 1794-1802.

Five of the eight others, for whom no birth date has come down, died early; it is uncertain whether they died early because they were older men than the others, or whether they were of the same general age grades. Their early deaths, before records were kept on the islands, has left us in ignorance.

Assuming that they were at least 20 years of age when they arrived in Tasmania, the earliest date the ones of known ages were likely to have appeared on the Bass Strait Islands was between 1814 and 1822.

The earliest recorded date of birth of any F_1 Australian who survived to maturity in the Bass Strait area is 1815; the earliest recorded F_1 Tasmanian in the area was born in 1821.

In a general way these dates may suggest that despite stories of the killing of the earliest half-caste children at birth, it was not very long before they were being permitted to live. It will be recalled that it is normal in the harsh Australian environment for children to be suckled for up to three or more years and that infanticide used to be practiced to dispose of subsequent children born too soon, who could not be allowed to jeopardise their older brother or sister's prior claim to life. In our buffered existence and dependence on the milk of the cow, we are apt to forget the difficulties attending on the early weening of children at the level of Palaeolithic savages. It is clear that by 1830 F_1 children were welcome, and by 1840 twenty were living.

The Tasmanian Women

Nine Tasmanian women associated with white sealers in the Flinders Island group are noticed in this study as having given birth to F_1 Tasmanians. They are listed in the accompanying data from information gathered from the present day Islanders.

Of two of these women the native names are still preserved—Nimarana and Emmerenna. The first name has been written down by the author from the lips of an Islander, in International Phonetic script as ['Nimərana], and the second occurs in a letter written by J. A. Anderson, and preserved by Mrs. Bessie Robinson; it was written by him with the above spelling.

Four other Tasmanian women are remembered by their European names—Sarah, Jumbo, Margaret and Judy (also called Julia). Names of the three others are forgotten by present day descendants.

In the literature a list is available of nine native women who were known associates of white sealers in 1831. It gives Jackey, Jock, Judy, Kit, Little Buck, Little Mary, Mother Brown, Sall and Smoker. From another source it is known that Jock in the above list was a member of the Stoney Creek tribe. She had been stolen by sealers. Aborigines of that tribe who had been captured by G. A. Robinson, the Conciliator of the Tasmanians, during the round-up of natives in 1831, sought news of her as soon as they were encountered.

Of all the women listed in the 1831 record only Judy, later known as Judy and Julia Mansell, and as Black Judy, can be directly identified by name with present day genealogies. It is hoped that further documentary evidence may yet link the two sources together; the presence of nine individuals in two independent lists suggests that they may refer to the same persons. When G. A. Robinson, the Conciliator and Protector of the Aborigines, visited the Furneaux Group in 1831 he had authority to take these women away from their white sealer mates providing only he did not do so against their will. Most of the women chose to leave their white sealer "husbands". However soon after, meeting trouble with the transported Tasmanians whom he had brought to Flinders Island, Robinson made an arrangement with the white sealers, whereby, in return for help received, he would allow them to take back the women they had previously possessed. In his official report he indicated that "the sealers are perfectly satisfied with the arrangements". Nothing was said of the feelings of the women, but it may be assumed that they may have had some hankerings for their menfolk, with whom most of them continued to live until their deaths.

Descriptions of the appearance of the Tasmanian women as preserved in the memories of the present day Islanders furnish little that is new or useful. Much of what little is known has been summarised by Malcolm (1920) and by Meston (1947). The last named gives some data on their tribal affiliations, &c.

The Australian Women

In the present study four Australian aboriginal women are noticed as having contributed to the Bass Strait Island stock.

Earliest tangible reference to Australian aboriginal women is a note by Edward Stephens, quoted by Roth (1899, pp. 176-177). He says "There is not only European blood in these people, but also that of Australian and Maori, introduced into Tasmania in the early days of settlement".

While there is in the literature few other direct references to the presence of Australians among the women of Bass Straits their existence may be inferred from the report by Nixon (1857) that just prior to 1854 two native women "who had been living on King Island, were taken by the authorities and sent to Melbourne", implying that perhaps they were ultimately of Victorian rather than of Tasmanian descent.

It is probable that when Bonwick (1884, p. 198) referred to one woman as having had thirteen children by a white sealer, he was in fact alluding to the Australian aboriginal woman Elizabeth, second wife of Henry Maynard the white sealer. She bore him at least twelve F_1 Australian children, as chronicled in this study. Maynard had two other children, F_1 Tasmanians, by his earlier Tasmanian wife. It is from the mating of members of this Australian branch of the Maynard family with some Tasmanian hybrids from other families that much of the present day trihybrid Tasmanian x Australian x white stock has come into being.

Besides Elizabeth, who was still remembered affectionately in 1939 as 'Granny', there was a Victorian full blood woman who was a wife to white sealer Sam Bligh. Her physical appearance has been described in a previous paragraph. She is remembered as a "New Hollander", having straight hair; her name has not come down save as Mrs. Bligh. She was the mother of Emma and Eliza Bligh, F_1 Australians. The last named was the one referred to in an earlier paragraph, as having been born on Robbins Island.

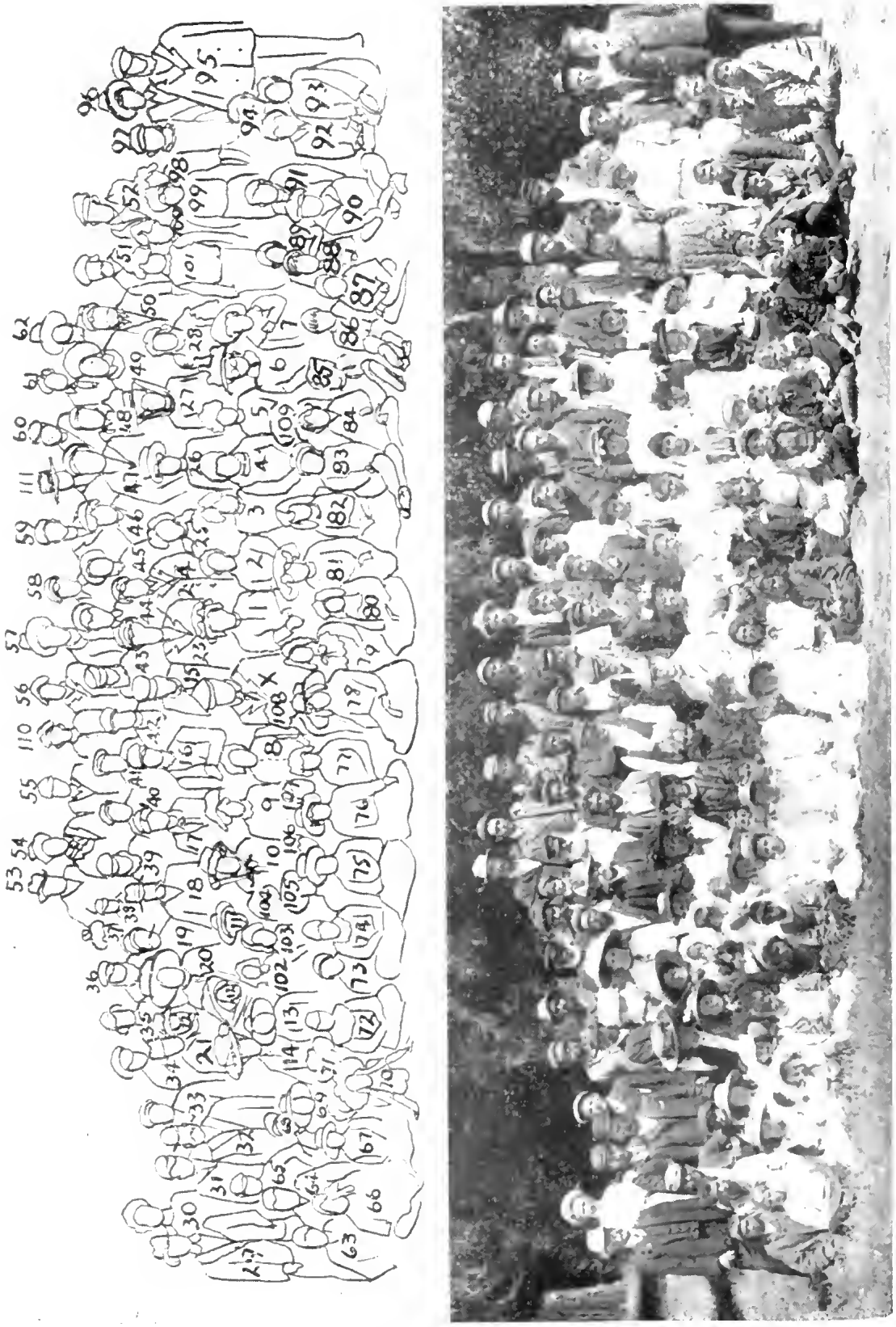


PLATE V

Ann, the first wife of Robert Rhew, a white sealer, was an Australian. Ann lived until 17 Dec. 1868, her death being recorded in the George Town Death Register, her son Tom lived until about the year 1900.

Two F_1 Australian girls were taken to Tasmania from Victoria after Buckley the "wild white man" of early day Victoria was discovered in 1835. Of these one married John Briggs, F_1 Tasmanian, by whom she had ten children and had many descendants in Victoria. The other sister has not been identified as having married into any Bass Strait Island family unless she is the woman known in this account as Jane Foster.

Jane Foster was an F_1 Australian whose mother is remembered only as from "Australia", without details as to name, &c. Jane married Andrew Armstrong, a white from Scotland and has many descendants through two of her sons and a daughter.

The Australian-white hybrids are seemingly all the results of crossings between whites and aboriginal women of the coastal regions of Southern Australia; they therefore probably all were of the Australian aboriginal type called Murrayian by Birdsell (1949); their appearance is no different from that of other Australian x white crosses present on the Southern parts of the mainland of Australia. As in Australia increasing admixture with whites seems to present an almost completely intergrading skin colour series from dark to white directly correlated with degree of admixture with white.

The Maori Woman

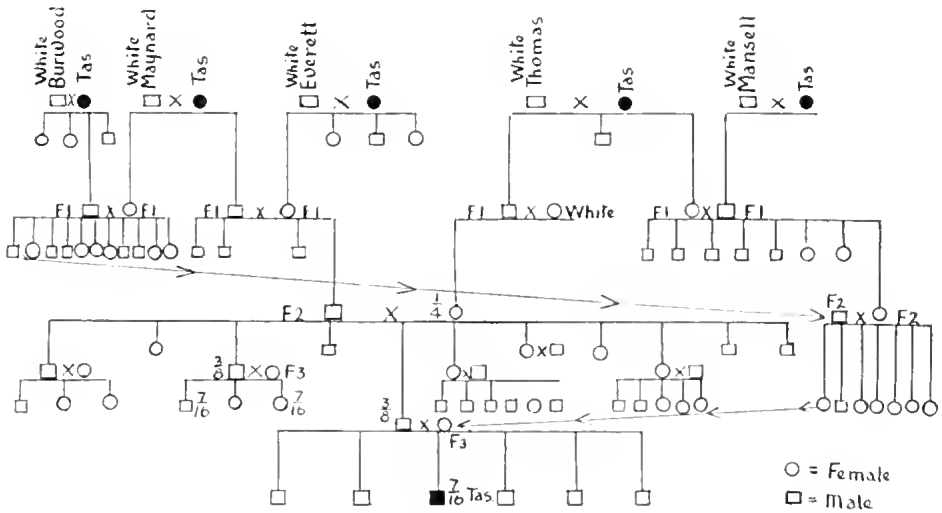
One Maori woman left descendants who married into the Bass Strait Island stock. She was Betty, from New Zealand, who was the second wife of James Everett, white sealer. By her he had two F_1 Maori white boys and a girl. One son married a white woman; the daughter never married and did not have children, the other boy died at fourteen years of age.

Two of the $\frac{1}{4}$ Maori-white descendants of Betty's son married into the Bass Strait Island population, but the marriages were not fruitful. Hence the Maori strain has had little significant effect on the constitution of the group. Maori came in again as a still further diluted Maori-white strain in the 5th generation, there being a single quadrihybrid male born, who has Tasmanian-Australian-white-Maori in his constitution; he is a descendant of the same woman Betty.

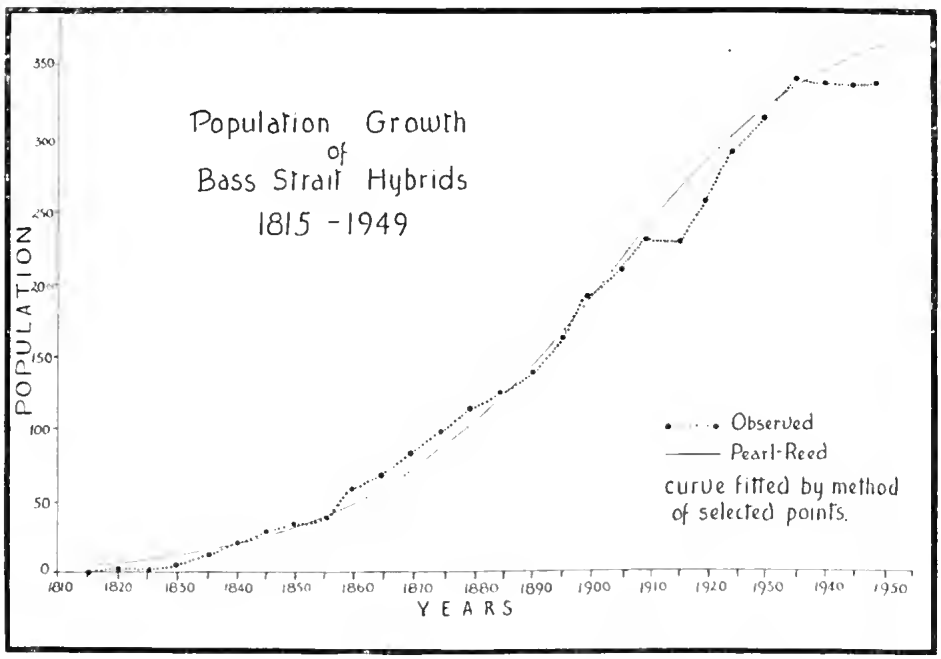
The Genealogical Record

Like many other folk who live in isolation from the outside world, the Bass Strait Islanders always have been fundamentally interested in the details of their own family histories and are happy to give information. This fact together with their uninhibited approach to the discussion of details of illicit unions, and of the results, which are almost always openly acknowledged in the naming of the children, has helped much in the otherwise tedious work of sorting out the many Maynards, Mansells, Browns and Everetts to ensure that none were confused because of similarity of names.

Here the Islanders have proved unconsciously very co-operative for in the first generation their parents gave them only single given (Christian) names, usually two names in the second generation, and very often three such names in the third generation.



TEXT FIG. 1.—Diagram illustrating the descent of Lawrence Maynard, 7 16 Tasmanian.



TEXT FIG. 2.—Graphical presentation of the population growth of the Bass Strait hybrids, 1815-1949.

In the course of our field work each measured person was subjected to enquiry as to his genealogical data. This information was written down in conventional form, along with all remembered dates. This led to innumerable overlappings of data, each confirming the other. Constant watch was kept for anomalies since pursuit of these by further enquiries generally enabled any conflicts to be resolved.

The subsequent detailed elaboration and cross-checking of the results and the confirmation of birth and death dates by searching of records has given the writer a healthy respect for the accuracy and care with which the Islanders have been able to preserve details of their family histories.

Legal marriages at first were in the small minority. Bishop Nixon in 1854, for example, gave religious sanction to a union between sealer Mansell and his Tasmanian wife Judy or Julia, only after they had lived as man and wife for upwards of twenty years. The *de facto* marriages usually proved stable and are always indicated in records by the assumption of the father's name by the child. Scanning the data will show how relatively few 'extra marital' children there are. Such children take the family name of their mother. There have been one or two instances of clandestine incestuous relationships leading to the birth of a child.

Speaking generally marriages take place when the man is about 22 years of age and the girl a year or two younger. Relatively few girls have their first child before they are 19 years of age. Details of vital statistics such as these are to be discussed in full in a separate paper, along with the details of a similar nature pertaining to Australian full bloods and hybrids.

While a first child may be born out of wedlock the parents almost always marry before the birth of a second. In only a very few cases is the actual father unrecognised or concealed. The existence of a few is responsible for the column headed "Indeterminate" in the accompanying population table. Sentiment on the Island tends to permit premarital intercourse but does not encourage indiscriminate prostitution. In several cases there has been a separation (sometimes not legally confirmed). Such transfers of marital association to another, are usually regarded, locally, as having the status of a divorce.

The attached list (Appendix A) contains the names of approximately 700 individuals. The data is given in such a way that an interested reader can, with little difficulty, reconstitute the detailed genealogies upon which the study is based.

Names in the list are given alphabetically so that members of each of the principal families on the island are brought together. To assist this females are shown alphabetically following the males according to their family of birth; their family name being in a bracket. When they have been married the name of the family into which they have passed is given initially, followed by the family of birth in brackets. In alphabetising the list this married name was ignored.

The Growth of Population

When the genealogical and other data is set out it is possible to compile a working graph of population on a yearly basis with only a relatively few uncertainties where exact birth and death dates are lacking.

This working graph has been read at five yearly intervals to provide the population data shown in the accompanying figure (Text fig. 2) and broken down in more detail, by generations and by types of racial admixture, in the accompanying table (Text fig. 3).

The details show that commencing with a single birth in 1815 the breeding group of Bass Strait Islanders has increased in 135 years to 338 persons. For various reasons outlined in a later section the last named figure is a minimum and may have to be increased by from 3 to 5%.

Development of the hybrid population of the Bass Strait Islands appears to have followed a growth trend which can be expressed by a logistic curve of the Pearl-Reed type.

Text figure 2 gives figures at five-yearly intervals for the population from 1815 to 1949 together with a fitted curve from 1815 to 1950 obtained by the *Method of selected points*.

The logistic curve was derived from the following data:—

1840	1890	1940
$t_0 = 0$	$t_1 = 10$	$t_2 = 20$
$y_0 = 20$	$y_1 = 136$	$y_2 = 335$

The equation of the curve is of the form $y' = \frac{k}{1 + m}$ where $m = e^{a + bt}$.

The values of the three required parameters are indicated by the equations:—

$$(1)\quad k = \frac{2\,y_0y_1y_2 - y_1^2\,(y_0 + y_2)}{y_0y_2 - y_1^2} = 402{\cdot}1431$$

$$(2)\quad a = \log e\frac{k - y_0}{y_0} = \log 19{\cdot}107152 = 2{\cdot}95007$$

$$(3)\quad b = \frac{1}{n}\log e\,\frac{y_0\,(k - y_1)}{y_1\,(k - y_0)} = -0{\cdot}241978$$

$$m = e^{a + bt}$$

$$\log m = 1{\cdot}28716 - 0{\cdot}10423t$$

The work sheet is as follows:—

Year	t	$\log m$	m	$1 + m$	$y' = \frac{k}{1 + m}$	y	$\frac{y}{y'}$
1815	—5	1·8083	64·31	65·31	6·2	1	16·3
1820	—4	1·7041	50·59	51·59	7·8	1	13·0
1825	—3	1·5998	39·79	40·79	9·8	4	40·8
1830	—2	1·4956	31·30	32·30	12·4	6	41·4
1835	—1	1·3914	24·62	25·62	15·6	14	89·9
1840	0	1·2872	19·37	20·37	19·7	20	101·5
1845	1	1·1829	15·24	16·24	24·8	25	100·8
1850	2	1·0787	11·99	12·99	30·9	30	97·1
1855	3	0·9745	9·43	10·43	38·6	39	101·0
1860	4	0·8702	7·42	8·42	47·7	58	125·8
1865	5	0·7660	5·83	6·83	58·8	70	119·0
1870	6	0·6618	4·59	5·59	70·2	85	121·1
1875	7	0·5575	3·61	4·61	87·2	101	115·8
1880	8	0·4533	2·84	3·84	104·7	114	108·9
1885	9	0·3191	2·24	3·24	124·1	125	100·7
1890	10	0·2448	1·76	2·76	143·5	136	94·8
1895	11	0·1407	1·38	2·38	168·9	163	96·4
1900	12	0·0364	1·09	2·09	192·4	192	99·8
1905	13	—0·0678	0·86	1·86	216·2	210	97·1
1310	14	—0·1720	0·67	1·67	240·8	230	95·5
1915	15	—0·2763	0·53	1·53	262·8	227	86·3
1920	16	—0·3805	0·42	1·42	283·2	257	90·7
1925	17	—0·4847	0·33	1·33	302·3	291	96·2
1930	18	—0·5889	0·26	1·26	319·1	314	98·4
1935	19	—0·6932	0·20	1·20	335·1	340	101·5
1940	20	—0·7974	0·16	1·16	346·6	336	97·0
1945	21	—0·9016	0·13	1·13	356·0	337	94·6
1950	22	—1·0059	0·10	1·10	365·5	338 (1949)	92·5
28						$\sum_1^{28} \frac{y}{y'} =$	2533·9

The reasonable nature of the fit of the curve is shown not only by the plotting of the calculated data and its comparison with the raw figures but is confirmed by the fact that the sum of the ratios of the raw data to the trend is approximately 90 times the number of years.

The result may be interpreted as showing either that the effect of hybrid vigor induced by the initial crossings has come to have less effect in later generations or that the effective occupation of the area available to the Cape Barren Islanders is now so complete that further natural expansion is inhibited.

Reliability of the Population Data.

While birth and death dates are lacking for some of the hybrid people, internal evidence such as name of mother of children, dates of remarriages of relict partners &c., often yield approximate dates and help to minimise errors due to lack of direct information. The low incidence of infant mortality might be ascribed to lack of information were it not that in the periods when tolerably complete records are available the mortality rates are similar. Unfortunately miscarriages are not recorded and there is only scant data to be had regarding such. Of 37 women of 21 years or over interrogated by D. M. Tindale in 1939 one had had four miscarriages, three each had had one stillborn male child and one of these had also had a stillborn female child.

In 1939 the earliest direct and firm information obtainable from Bass Strait Islanders was carried in the minds of second generation descendants of the original Tasmanians, whose ages ranged from 64 to 85 years. Their fragmentary recollections date possibly back to 1860, a period when more than one Tasmanian woman was living and five of the dozen original whites were still present. At this time most of the F_1 generation were still in the prime of life. Some of them survived into the present century so there existed a living vehicle for the transmission of direct data about F_1s until relatively recent times. Malcolm (1920) tapped this source. Some of the natives possess data passed to them by their forebears. Birth records for Bass Strait Islanders are available from 1855 onwards. They are principally to be found in the George Town and Ringarooma Registers. Death registers commenced in 1859 and are probably fairly complete after 1865. A Church of England Baptismal Register and lists of persons confirmed between 1891 and 1905 together with their ages, furnished some birth information back to 1822 for F_1 Tasmanians then still living. Tombstones on the Island provide a minor source of data on ages and have been used to give date of death for some individuals. Early statistical information provides some cross checks.

Capt. Stokes in 1842 reported 25 halfcastes on Preservation Island and vicinity. This study has names of 20 who were alive in 1840 and of 25 alive in 1845.

According to Brownrigg (1872) the halfcaste population of Cape Barren Island in February 1872 comprised 32 adults and 52 children. The genealogies presented in this account indicate the names of 33 adults and 52 children of 15 years and under alive at this date but the name of one adult is marked with a question mark as being possibly already dead in 1872. There is thus, in this instance, an almost complete degree of correspondence between the two sets of information.

Bonwick (1884, p. 198) quotes a letter from a Captain Malcolm Laing Smith in 1868 giving the numbers of half-castes then living, of the first and second "degrees" (i.e., generations) as eighty or ninety. In the present study the names of 85 persons living in 1870 are recorded, a very satisfactory check with Smith's estimate.

BASS STRAIT ISLANDERS

Year	1st Gen. F_1 Tas	1st Gen. F_1 Aus	2nd Gen. F_2 Tas	2nd Gen. 1/4 Tas	2nd Gen. F_2 Aus	2nd Gen. 1/4 Aus	2nd Gen. (F_1 Tas x F_1 Aus) Trihybrid	3rd Gen. F_3 Tas	3rd Gen. 3/8 Tas	3rd Gen. 2/8 Tas	3rd Gen. 1/8 Aus	3rd Gen. Trihybrids (various)
1810												
1815		1										
1820		1										
1825	3	1										
1830	5	1										
1835	13	1										
1840	18	2										
1845	20	5										
1850	20	8	2									
1855	19	11	6			2						
1860	19	11	21			4						
1865	17	12	30	2		5						
1870	15	12	41	2	1	9	2					
1875	15	11	46	1	1	15	4	2				
1880	12	10	48	4	1	19	6	4		2		5
1885	10	8	46	5	1	20	6	11		5	1	9
1890	8	7	43	5	1	19	7	20	2	8	1	14
1895	8	7	42	5	1	18	8	29	3	12	5	23
1900	5	7	35	1	1	20	7	37	5	22	10	32
1905	3	7	30	4		21	6	44	7	23	11	39
1910	3	7	29	4		20	6	41	9	23	14	40
1915	1	4	21	4		19	6	39	9	22	14	41
1920		3	19	2		19	5	38	9	22	11	40
1925		1	17	2		19	1	35	9	21	11	42
1930		1	14	2		16	3	32	8	20	11	40
1935			10	2		13	2	32	7	20	11	40
1939			7	2		13	2	31	7	19	11	39
1940			5	2		13	2	30	6	18	9	38
1945			4	1		10	2	26	6	17	8	35
1949			3	1		10	2	25	6	16	7	30

Year	4th Gen. Fx Tas	4th Gen. 7/16 Tas	4th Gen. 6/16 Tas	4th Gen. 5/16 Tas	4th Gen. 4/16 Tas	4th Gen. 2/16 Tas	4th Gen. 1/16 Aus	4th Gen. Trihybrids (various)	5th Gen. 16/32 Tas	5th Gen. 12/32 Tas	5th Gen. 6/16 Tas	5th Gen. 4/32 Tas	5th Gen. Trihybrids (various)	6th Gen. Trihybrid	INDETERMINATE	Total Population	Year
1810																	1810
1815																1	1815
1820																1	1820
1825																4	1825
1830																6	1830
1835																14	1835
1840																20	1840
1845																25	1845
1850																30	1850
1855															1	39	1855
1860															3	58	1860
1865															4	70	1865
1870															3	85	1870
1875															3	101	1875
1880															3	114	1880
1885															3	125	1885
1890															1	136	1890
1895			1												1	163	1895
1900			3					2							2	192	1900
1905	1		3					10							1	210	1905
1910	3		6				1	22							2	230	1910
1915	6	1	8	1			2	26							3	227	1915
1920	10	3	9	3	2	1	2	54					1		4	157	1920
1925	11	8	13	3	6	1	2	73					6		4	291	1925
1930	12	9	15	3	10	6	2	90					15		5	314	1930
1935	12	10	16	3	13	8	2	100	1	1	1		29		7	340	1935
1939	12	9	17	3	14	8	2	103	1				29		7	336	1939
1940	12	9	17	3	14	8	2	103	1		1		35		7	335	1940
1945	11	8	16	3	14	7	1	98	1	1	1		58		9	337	1945
1949	11	7	15	3	14	6	1	94		2			68	1	16	338	1949

Text fig. 3. Table showing population of Bass Strait Islanders of hybrid origin, 1815-1949.

The principal uncertainties and discrepancies appear in the 3rd, 4th and 5th generations owing to out-marriages with whites. Having left the Island even their immediate relatives are uncertain as to the exact number of children, and of their ages, which are not usually recorded in the Flinders Island Register if they are not born on the island, and do not come back to furnish details.

The families mentioned in the literature on the Tasmanians can still be recognised on the island; in some cases the original white sealers were for obvious reasons referred to only under pseudonyms in the literature, in other cases the island families are known to have varied and changed the spelling of their names.

One Tasmanian mixed-blood family, that of Briggs, went to Victoria before 1865 and after a sojourn at Mt. Cole Station near Beaufort (now known as Eurambeen), the descendants have congregated at Comeroogunja, New South Wales, where members of the third, fourth and fifth generations are now living, including some 116 persons of dilute Tasmanian ancestry, i.e., trihybrid Tasmanian x Australian x white stock. These people have not kept up communication with their Bass Strait Island kindred and are not included in the present study, although detailed genealogies are available in the records of the Expedition, from studies made at Comeroogunja in May 1938. Another small independent series of dihybrid Tasmanian x white folk developed on Kangaroo Island in South Australia. Berry (1907) described one F_1 Tasmanian from Kangaroo Island, this being the only published detailed physical study of any F_1 Tasmanian. A brief account of the origin of the Kangaroo Island series is given by Tindale (1937). While some genealogical data for these Kangaroo Islanders of mixed origin has been gathered no further studies have yet been attempted.

In the years just prior to 1939, the migration of a few families from the Bass Strait Islands to Melbourne, Hobart, Launceston and elsewhere in Tasmania, removed some people of Tasmanian descent from the Bass Strait Islands and data on these families has been difficult to trace; a few, no more than five, principally of ¼ or less Tasmanian admixture, have so completely merged with whites as to have lost touch altogether with their island kin. Issue of these may have been overlooked in compiling the genealogies upon which this study is based. For example after the general study was completed and being subjected to check at Cape Barren Island in 1949 it was learned that an F_2 Tas male, who married a white woman in Launceston, had a family of four boys and four girls who might be genealogically listed as (F_2 x white) but about whom no other particulars are available. These individuals were, for lack of direct data, not counted in this study. Another family which could not be counted was that of a (F_2 Tas x white) man who married a white woman and has had at least one boy and one girl, genealogically ((F_2 Tas x wh) x white) = ¼ Tas. The resulting error is the less serious since these are persons definitely withdrawn from the main breeding group of Bass Strait Islanders.

Also excluded from this study for lack of detailed data are the descendants of one or more white sealers who lived on King Island. Bonwick (1884, p. 201) refers to two half-caste girls and a boy. The F_1 girls both married whites; one named Kitty resided in Ballarat and the other, Mary, married an Englishman and had a family; her descendants possibly are in Melbourne. It is uncertain whether their mother was Tasmanian or Australian. The fact that they went to Victoria may suggest they were of Australian descent.

The history of another F_1 Tasmanian woman, Dolly of Port Dalrymple is recorded by Bonwick (1884, p. 201 *et seq*). She was born in 1808; perhaps the first F_1 Tasmanian to survive. She married a white in Perth, Tasmania, by name

Johnson, and reared a family of 4 Tasmanian girls. One of them is stated to have had snow-white hair. No descendants of this line have been encountered in the Bass Strait Islands.

With the qualifications outlined above the data indicates the growth and integration of a relatively isolated population of Tasmanian x white, Australian x white, and Tasmanian x Australian x white stock now principally concentrated on Cape Barren and Flinders Islands in Bass Strait. In the coming 6th generation, if the pattern continues, they will merge into a general trihybrid population in which white "blood" will predominate with a somewhat smaller proportion of Tasmanian blood and still lesser proportion of Australian aboriginal forming a highly inbred, rather diverse looking community of "light" to "dark" whites.

General Discussion.

The situation in which the Tasmanian mixed peoples are found to be integrating, in an isolated environment on the Bass Strait Islands, to form a compact and genealogically rather uniform population of trihybrid admixture is a particular case of the general di-, tri- and multi- hybrid admixtures which seem to have played a part in the development of many of the present day peoples of the Asiatic and European mainland.

We are reminded of the discovery in the Ofnet cave in Europe of a late Palaeolithic communal burial of the heads of a series of ancient Europeans. All but one of the males were of one (dolichocephalic) type while all but one of the females were of another (brachycephalic) type.

In the make-up of the people of Europe, Nordic, Mediterranean and Alpine have hybridised to various degrees. In some areas isolation, after an initial period of crossing, probably has tended to build up relatively "uniform" local hybrid populations with a degree of in-breeding similar to that of the Tasmanian group under discussion. However the details of such admixtures can only be understood in general terms.

In the case of the Cape Barren Islanders rather more documentation is available and it seems possible to follow the main trends of the hybridization process to the 4th and 5th generations. If care is taken to continue gathering data in the present generation it may be possible to extend the study of these peoples for several more generations before they come inevitably to lose their identity in the general white population of Australia. To that end the author offers the details of earlier generations he has been able to glean.

Discussion of Previous Work

Bonwick (1870) gives an early and most useful general picture of the Bass Strait Islanders as they were in the 1830's and 1840's, but few specific details.

Malcolm (1920) was the first to study the people as a problem in science. He gave an account of his visit to the Bass Strait Islands late in 1912. His observations are fragmentary, having been made during a voyage mainly devoted to an ornithological study of the area. He saw the surviving F_1 Tasmanians, Henry Beeton who died very shortly after his visit, and Phillip Thomas (died 1915). He outlined one short genealogy which unfortunately was lacking in essential information so that in the case of the younger persons mentioned con-

stitutions are not correctly recorded. Errors crept in which the Islanders, who had long possessed a copy of the paper, were anxious to correct. The husband of Nancy Thomas was stated to have been a European, whereas he was an F_1 Tasmanian. It was his father who was the European; Thomas (Sydney) Mansell, her husband, was an F_1 Tasmanian. In view of the interest of Malcolm's photographic records the following corrected names and descriptions of the portraits in his paper (Plate K and text figure 11) are given. They are vouched for by some present when they were taken.

Corrected List of Bass Strait Islanders Figured by Malcolm (1920, Plate K and Text Figure 11).

Fig. 1.—Henry Beeton F_1 Tas.
Fig. 2.—Phillip Thomas F_1 Tas.
Fig. 3.—Thomas Edward Mansell F_1 Tas.
Fig. 4.—John Thomas junior, (F_2 Tas x F_1 Aus) b. 1904, d. 27 July 1926.
Fig. 5.—Edgar Leopold Maynard (F_2 Tas x $\frac{1}{4}$ Tas).
Fig. 6.—Lucy Isabel Thomas (born Maynard) (F_2 Tas x F_1 Aus).
Fig. 7.—Phillipa Malvina Priscilla Mansell (Thomas) (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus).
Fig. 8.—Front view Frances Mary Thomas (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. 24 July 1902, living 1939.
Fig. 9.—Side view Irene Thomas, same constitution, sister of Frances, b. 16 June 1900, d. 17 Aug. 1912.
Fig. 10.—Ronald Thomas (F_1 Tas x F_1 Aus), b. 4 Feb. 1886, d. 25 July 1917.
Fig. 11.—Phillip Thomas junior, (F_1 Tas x F_1 Aus), b. 1 Jan. 1878, d. 13 Jan. 1924

Another contribution to the study of these people is by Meston (1947). He gathered together from unpublished manuscript sources much useful information. Considering the materials used were so entirely different from the ones brought together here there is surprisingly close agreement between his data and that gathered in 1939.

The Meston data rounds out information about the original Tasmanian ancestors, in several cases confirming names of Tasmanian women involved and in other cases adding names and tribal data not now remembered on the island.

Unfortunately his sources did not include detailed genealogies. Hence similarity of names of one or two persons in different generations has led to confusion, as appears in the single given genealogy. Thus it was the son of James Beedon (Beeton) (F_1 Tas) who married Judith Thomas, not Henry Beedon's son, and this son, Herbert James Beedon, was an F_2 Tasmanian since he had as mother Rachel Everett (F_1 Tas), daughter of James Everett (white) by a Tasmanian woman. The correct genealogy, as also all the others gathered by the present writer can be constructed by simple rearrangement of the data presented in the present paper as Appendix A.

The most important discrepancy between the two sets of data as gathered by Meston and the present writer falls around the statement by Meston (p. 49 line 12) that the Mansells were issue of Tom Mansell and a "negress". According to data in the present study the white sealer who commenced the Mansell line was in fact Edward Mansell (also called Sydney). Edward Mansell died 25 Feb. 1876, age 74 years; his death was recorded in the George Town Register. He was by occupation a sealer, of Cape Barren Island. After over twenty years of association with his 'wife' Julia he was married to her by Bishop Nixon in 1854. His son, Tom, had as mother Judy, also called Black Judy and Julia. This Tasmanian aboriginal woman, according to William Henry Mansell, died on Seal Island of old age, having been cared for by her descendants until her death. Thomas Mansell was thus an F_1 Tasmanian. His wife was Nance also called Nancy Thomas, also F_1

Tasmanian, by whom he had no fewer than nine children, all of whose births, commencing with the eldest on 1 Sept., 1860 were duly recorded in the official register at George Town.

Meston's unsupported statement regarding the "negress" origin of the Mansells should be set up against the following:—

(*a*) There are serious genealogical discrepancies in his sources.

(*b*) Tom Mansell's wife Nance was full sister to Phillip Thomas, hence was an F_1 Tas. Since both she and her brother lived until after the first decade of this country their relationship is well attested.

(*c*) No particular negroid characters apart from those of the Tasmanian negritoid stock have been detected in Mansell's descendants.

(*d*) When in 1949 the late Mr. A. Meston was asked to produce documentary evidence for the statement made he was unable to do so. On the evidence it can be assumed that any source from which the word "negress" was obtained used the term only as indicating a person of dark complexion.

A second discrepancy between the Meston and present accounts lies in the statement by him that the original Everett was George. Records suggest this white sealer was James Everett who died 3 June 1876, at 82 years of age (George Town Register) his occupation then was given as sealer, and his residence as Badger Island. George was one of four children born to James by a Tasmanian woman. James had two wives (*a*) an earlier Tasmanian full blood whose children were born between 1830 and the early 1840's, and (*b*) Betty, a Maori full blood, by whom he had F_1 Maori white children between 1850 and 1870. Descendants of the Maori line did not marry in with the other mixed-bloods until quite recently. George (F_1 Tas) did not marry Mary, a South Australian full-blooded aboriginal as stated by Meston, but Jane Beeton (F_1 Tas) by whom he had twelve children. Births of most of these children duly appear in birth registers, generally at George Town, or in records kept at Flinders Island, commencing with Ada Mary 15 May 1861 and continuing with George junior (F_2 Tas) born 10 Jan. 1863. Their last child was Rachel Adelaide born about 1880 whose portrait as a young girl is given in this paper (Plate IV fig. 3). The senior George (F_1 Tasmanian) died 21 June 1883 on Cape Barren Island, his age was then given in the George Town and Ringarooma Register as 48 years, and his occupation as sealer. Thus he was born about 1835; he could not have been an associate of a full-blooded Tasmanian since he was not of propagating age until well after 1850 by which time apparently there were left no living full-blooded Tasmanian women of child-bearing age.

A third apparent discrepancy in Meston (p. 49 paragraph 5) can be easily resolved if it is due, as suspected, merely to a typographical error involving punctuation or an omission of one or more words. From Meston's context Betty could be construed to be an F_1 Maori Tasmanian whose father was Mattai, a full-blooded Maori and whose mother was Wapperty a full-blooded Tasmanian, whereas on our records Betty was a Maori woman who came from New Zealand and bore three children to James Everett in the 1850's and 1860's.

Social Conditions of the Bass Strait Islanders

It is not intended here to give detailed information on the social conditions of the Cape Barren Islanders. A few details were given in a previous account by Tindale (1941).

English is the only language spoken. A majority of the islanders are literate but few are interested in literary pursuits. For several generations they have been dependent for their livelihood on the seasonal occupation of capturing and salting mutton-birds in March and April of each year on the smaller islands of Bass Strait. In earlier times many of them were sealers but the decline of herds of these sea mammals and the policy of protection instituted by the Government long ago destroyed their interest in this occupation.

As may be seen from the population table increase of the population has been steady and rapid. A decline in living standards has been concurrent, and this had by 1939 introduced grave uncertainties into the future prospects for the development of the islanders. Migration to the Tasmanian mainland officially had not been encouraged but had been going on for some time and was accelerated in the period 1939-1949. The shift seems inevitable for the population continues to grow without any more living space being available on the Bass Strait Islands.

Some islanders have shown very successful adjustment to modern life and education will help many of those who, through force of circumstances, have lagged behind.

The desirability of recording vital statistics led to particular enquiries regarding the numbers of men of the group who served in the Armed Forces in both World War I and II. From the list it will be noticed that more than one was killed in action. The Islanders indeed are proud of their record in providing men for the Armed Forces and of their record as servicemen.

One trihybrid girl of the fifth generation, Thelma June Maynard served in the W.A.A.F. during World War II. This also is a matter of particular pride to Islanders. As shown in the family lists one or two men suffered as prisoners-of-war of the Japanese.

In November 1947 references were made in the Tasmanian Legislative Council to alleged unsatisfactory conditions on Cape Barren Island claiming "inbreeding and malnutrition were such that halfcastes could hardly stand up to a day's work". The claims were denied by the Health Department but it was even then becoming more than evident that breaking point was approaching. Any policy, however passive, of containing or encouraging the Islanders to remain within the limited physical limits of Cape Barren Island Reserve, and about Lady Barron on Flinders Island could not be sustained, even if desirable, and it is to be expected that the Islanders will in time be dispersed far and wide in Tasmania and Victoria.

By 1949 only three of the F_2 Tasmanians remained alive, Herbert James Beeton, Walter Victor Beeton and Matilda Florence Mansell. With the passing of the older generations the links with their past history are fading and it would seem that increasing education, better food, and opportunities for work will be the principal requisites for their complete identification with the rest of the white population of Australia.

According to the latest official figures 300 of the Bass Strait Islanders still live on Cape Barren Island and the surrounding islands. The others are elsewhere.

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APPENDIX A

List of the Bass Strait Islanders of Hybrid Descent and their Associates, 1815-1939, with Some Additional Details to 1949

Adams, Charles, also called Charlie, white, of Sorell, married Maggie Smith, F_3 Tas.

(Adams), female, (F_3 Tas x wh), = ¼ Tas, b. 1917 approx., dead, no other details. father Charles Adams mother Maggie Smith.

Armstrong, Andrew, senior, white, marr. Jane Foster F_1 Aus.

Armstrong, Andrew, junior, ¾ Aus, b. before 1859, prob. 1855-56, d. 1888 approx., age 29-33 approx. f. Andrew Armstrong senior m. Jane Foster.

Armstrong, George, ¾ Aus, b. before 1884, living 1939 age 54. f. Thomas Armstrong m. Elizabeth Gutson.

Armstrong, Harry, senior, also called Henry, ¾ Aus, b. 1860 approx., d. 1930 approx., age 70 approx. f. Andrew Armstrong, senior m. Jane Foster. marr. Ida Beeton.

Armstrong, Harry, junior, also called Henry Isaac, (F_2 Tas x ¾ Aus), b. 7 Nov. 1881, living 1939 age 57/3; still living on Flinders Island 1949. f. Harry Armstrong m. Ida Beeton. marr. Ivy Victoria Everett.

Armstrong, Hugh, (F_2 Tas x ¾ Aus), b. 12 April 1883, d. 7 June 1883, age 0/2. f. Henry Armstrong m. Ida Beeton.

Armstrong, Owen, (F_2 Tas x ¾ Aus) x (F_2 x ¾ Aus), b. 1914 approx., living 1939 age 25 approx., d. before 1949. f. Henry Isaac Armstrong m. Ivy Everett.

Armstrong, Thomas, ¾ Aus, b. 1856, d. 19 July 1926, age 70. f. Andrew Armstrong m. Jane Foster. marr. Elizabeth Gutson.

(Armstrong), Ada Mary, (F_2 Tas x ¾ Aus), b. 23 Dec. 1877, d. probably as infant. f. Henry Armstrong m. Ida beeton.

(Armstrong), Bernice, (F_2 Tas x ¾ Aus) x F_2 Tas x ¾ Aus), b. 1923 approx. living 1939 age 16 approx., still living on Flinders Island 1949. f. Henry Isaac Armstrong m. Ivy Victoria Everett.

(Armstrong), Esma, (F_2 Tas x ¾ Aus) b. 1916 approx., living 1939 age 23 approx., still living 1949. f. Henry Isaac Armstrong m. Ivy Victoria Everett. after 1939 marr. — Reynolds.

(Armstrong), Ida, (F_2 Tas x ¾ Aus) x (F_2 Tas x ¾ Aus), b. 1919 approx., living 1939 age 20 approx., still living 1949 at Killicrankie. f. Henry Isaac Armstrong m. Ivy Victoria Everett. after 1939 marr. — West.

(Armstrong), Isla, (F_2 Tas x ¾ Aus) x (F_2 Tas x ¾ Aus), b. 6 Dec. 1921, living 1939 age 17/2, still living at Killicrankie 1949. f. Henry Isaac Armstrong m. Ivy Victoria Everett. after 1939 marr. — Purdon.

Maynard (Armstrong), Mary, ¾ Aus, b. 10 Feb. 1854, living 1939 age 85/0. d. 18 May 1944 at Cape Barren Island. f. Andrew Armstrong m. Jane Foster. marr. James Maynard.

Art, also called Hart Reg., white, marr. Lydia Fisher ¾ Aus.

Arthur, Walter George, Tasmanian full blood, marr. Mary Ann Cochrane.

Beeton, male, F_3 Tas, b. 17 Oct. 1901, d. 17 Oct. 1901, age ½ hr. f. Walter Beeton m. Rachel Everett.

Beeton, male, (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 1902 approx., no other information. f. Herbert Beeton m. Judith Thomas.

Beeton, Alfred Ivan, (F_3 Tas x wh) ¾ Tas, b. 8 April 1932, living 1939 age 6/9. still living 1949 in Launceston. f. Victor Beeton m. Ivy Jones.

Beeton, Beverley, (F_3 Tas x wh) = ¾ Tas, b. 1937 approx., no other information. f. Victor Beeton m. Ivy Jones.

Beeton, Clement Desmond, (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 23 June 1897, living 1939 age 41/7, still living, in Launceston, 1949. f. Herbert Beeton m. Judith Thomas. marr. Sarah Jane Everett.

Beeton, Clive Edwin, (F_2 Tas x (F_2 Tas x wh)), b. 26 May 1923, living 1939 age 15/8, still living 1949, in Melbourne. f. Isaac Beeton m. Olive Brown. after 1939 marr. Thelma June Maynard. Measured as N.1668.

BEETON, CYRIL EDMUND, (F_2 Tas x (F_2 Tas x wh)) x F_2 Tas x (F_1 x F_1 Aus)), b. 30 April 1938, living 1939 age 0/9, still living 1949, in Scottsdale. f. James Beeton m. Eliza Beeton.

BEETON, FREDERICK WILFRED, (F_2 Tas x F_2 Tas), b. 11 March 1918, living 1939 age 20/11, still living 1949 at Piper River, Tasmania. f. Walter Beeton m. Rose Mansell. marr. Elvie Florence Brown. Measured as N.1657.

BEETON, HENRY senior, F_1 Tas, b. March 1835, d. 10 Dec. 1913, age 78/8. f. James Beeton m. Tasmanian, marr. Sarah Everett. photo. Man 1920 pl. K. f. 1.

BEETON, HENRY junior, F_2 Tas, b. 1859 approx., d. 1910, age 51 approx. f. Henry Beeton m. Sarah Everett, never married.

BEETON, HERBERT JAMES, F_2 Tas, b. 1865 approx., living 1939 age 74 approx., still living 1949. f. James Beeton m. Rachel Everett. marr. Judith Thomas.

BEETON, ISAAC THOMAS, F_2 Tas, b. 1872, d. 1916 approx., age 44 approx. f. James Beeton m. Rachel Everett. marr. Olive Maude Brown.

BEETON, IVAN, (F_2 Tas x F_2 Tas), b. 1911 approx., d. as infant. f. Walter Beeton m. Rosa Mansell.

BEETON, IVAN WILFRED, complex trihybrid, b. 16 Nov. 1938, living 1939 age 0/2, died after 1946. f. Frederick Wilfred Beeton m. Elvie Florence Brown.

BEETON, JAMES, called Jim, F_1 Tas, b. 1833 approx., d. 1878 approx., age 45 approx. f. James Beeton m. Tasmanian. marr. Rachel Everett sen.

BEETON, JAMES HENRY, (F_2 Tas x (F_2 Tas x wh)), m. 15 April 1907, living 1939 age 31/9, no later information. f. Isaac Thomas Beeton m. Olive Maude Brown. marr. Eliza Florence Beeton. Measured by Harvard-Adelaide Universities Anthropological Expedition January 1939 as N.1586.

BEETON, also called Beadon, and Herberts, JAMES HERBERT, white, b. 1798, d. 7 Jan. 1867 on Gun Carriage Island, age 69. marr. Emmerenna, Tasmanian full blood.

BEETON, LANCE, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 1 Jan. 1936, living 1939 age 3/1, still living at Cape Barren Island 1949. f. Clement Beeton m. Sarah Everett.

BEETON, LESLIE, called Les, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 24 March 1924, living 1939, age 14/10, still living at Cape Barren Island 1949. f. Clement Beeton m. Sarah Everett.

BEETON, LESLIE WILLIAM, called Lezely William, (F_2 Tas x (F_2 Tas x wh)), b. 16 June 1910, d. 21 May 1913, age 2/11. F. Isaac Beeton m. Olive Brown

BEETON, PHILLIP, (F_2 Tas x wh) = ¾ Tas, b. 1935, living 1939 age 4, still living 1949 in Launceston. f. Victor Beeton m. Ivy Jones.

BEETON, RUSSELL, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 1919 approx., living 1939 age 20 approx., still living at Cape Barren Island 1949. f. Clement Beeton m. Sarah Everett.

BEETON, VICTOR HAROLD ALBERT, F_2 Tas, b. 19 Jan. 1904, living 1939 age 34/0, still living in Launceston 1949. f. Walter Beeton m. Rachel Everett. marr. Ivy Jones.

BEETON, WALTER KENNETH GODFREY ERNEST, F_2 Tas, b. 31 July 1910, d. 3 July 1912, age 1/11. f. Walter Beeton m. Rachel Everett jun.

BEETON, WALTER THOMAS, (F_2 Tas x (F_2 Tas x wh)), b. 9 Feb. 1920 living 1939 age 19/0, still living 1949 in Launceston. f. Isaac Beeton m. Olive Brown. after 1939 marr. Dulcie Robena Beeton. has one child.

BEETON, WALTER VICTOR, F_2 Tas, b. 31 Jan. 1875, living 1939 age 64/0, still living 1949. f. James Beeton m. Rachel Everett sen. marr. Rachel Everett jun. and Rosa Mansell.

BEETON, (EMMERENNA), Tasmanian full blood, marr. James Herbert Beeton, had had three sons and a daughter.

(BEETON), ALICE, (F_2 Tas x (F_2 Tas x wh)), b. 1 June 1908, d. 1933 approx., age 25 approx. f. Isaac Beeton m. Olive Brown.

SMITH, (BEETON), AMELIA, called Mildred, Millie, F_2 Tas, b. 1855, d. 19 Oct. 1933, age 78. f. Henry Beeton m. Sarah Everett. marr. John Smith jun.

(BEETON), AZELLA AUSTRALIA, also called Zella, (F_2 Tas x (F_2 Tas x wh)) = ¾ Tas. b. 17 Nov. 1917, d. as child. f. Isaac Beeton m. Olive Brown.

MANSELL, (BEETON), CLYDIA ROBENA, also called Clyda, F_2 Tas x (F_1 Tas x F_1 Aus), b. 2 May 1910, living 1939 age 28/9, still living at Piper River 1949. f. Herbert James Beeton m. Judith Thomas. marr. Clarence Alexander Mansell. Measured as N.1622.

(BEETON), DULCIE ROBENA, also called Delsie Robena, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 1918 approx., living 1939 age 21 approx., still living 1949 at Cape Barren Island. f. Clement Beeton m. Sarah Everett, after 1939 married Walter Thomas Beeton. has one child.

(BEETON), ELAINE ROSE, (F_2 Tas x wh) = ¼ Tas, b. 9 Oct. 1930, living 1939 age 8/3, still living 1949 in Launceston. f. Victor Beeton m. Ivy Jones.

BEETON, 2nd marr., MAYNARD, 1st marr., (BEETON), ELIZA FLORENCE, F_2 Tas x (F_1 Tas x F_1 Aus), b. 1 June 1900, living 1939 age 38/8, still living in Scottsdale 1949. f. Herbert Beeton m. Judith Thomas. marr. Stanley Morton Maynard and James Henry Beeton. Measured as N.1694.

EVERETT (BEETON), HARRIET ISABEL, F_2 Tas x (F_1 Tas x F_1 Aus), b. 1903, living 1939 age 36, still living in Launceston 1949. f. Herbert Beeton m. Judith Thomas. marr. George Everett. Measured as N.1662.

MAYNARD (BEETON), HARRIET JANE, F_2 Tas, b. 1858, d. 3 May 1934, age 76. f. James Beeton m. Rachel Everett. marr. Joseph Maynard.

ARMSTRONG (BEETON), IDA, F_2 Tas, b. 1859 approx., d. 1889 approx. f. Henry Beeton m. Sarah Everett. marr. Harry Armstrong.

(BEETON), ILEEN (*sic*), F_2 Tas x (F_2 Tas x wh) = ¾ Tas, b. 10 Aug. 1915, d. 11 Sept. 1915, age 1 month. f. Isaac Beeton m. Olive Brown.

(BEETON), ISABELLA, F_2 Tas, b. 1862, living 1939 age 76, d. 5 Oct. 1939. f. James Beeton m. Rachel Everett. never married.

EVERETT (BEETON), JANE, F_1 Tas, b. 1837, d. 1 July 1904, age 67. f. James Beadon m. Tasmanian full blood. marr. George Everett.

BROWN (BEETON), JANE BEADON HERBERT, F_3 Tas, b. 1905, living 1939 age 33, still living 1949 at Cape Barren Island. f. Walter Beeton m. Rachel Everett. marr. George William Brown. Measured as N.1629

(BEETON), JUDITH ERNESTINE, also called Annie, F_2 Tas x (F_1 Tas x F_1 Aus), b. 23 June 1892, living 1939 age 46/7, still living in Launceston 1949. f. Herbert James Beeton m. Judith Thomas.

(BEETON), JULIA, F_2 Tas, b. 1860, d. 2 July 1879, age 19. f. James Beeton m. Rachel Everett.

(BEETON), JULIA LAVINIA, (F_3 Tas x F_2 Tas), b. 15 July 1921, living 1939 age 17/6, still living 1949. f. Walter Beeton m. Rose Mansell. after 1939 marr. Edmund Edwin Burgess. has one boy.

(BEETON), JUNE CLARICE, (F_2 Tas x wh) = ¼ Tas, b. 8 June 1933, living 1939 age 5/7, still living 1949 in Launceston. f. Victor Beeton m. Ivy Jones.

(BEETON), LENA, also called Everett, ((F_2 Tas) x (F_1 Tas x F_1 Aus)) x (wh), b. 12 Dec. 1927, living 1939 age 11/1, still living 1949 at Launceston, unmarried. f. unknown white m. Harriet Beeton. Measured as N.1707.

(BEETON), LENORA KATHLEEN, also called Nora, (F_3 Tas x F_2 Tas), b. 23 Jan. 1920, living 1939 age 19/0, still living at Cape Barren Island 1949, unmarried. f. Walter Beeton m. Rose Mansell. Measured as N.1642. has three children.

(BEETON), LEONE, also called Leone Fay Siralde, (F_3 Tas x F_2 Tas), b. 12 Nov. 1926, living 1939 age 12/10, still living 1949 in Launceston, unmarried. f. Walter Beeton m. Rose Mansell. Measured as N.1644.

SMITH (BEETON), LOUISA ADELAIDE, also called Lucy Adelaide, Lucy, Loui, F_2 Tas, b. 1857, d. 14 Oct. 1887, age 30. f. James Beeton m. Rachel Everett. marr. Edward Smith.

BROWN, (BEETON), LOUISA ADELAIDE, also called Lucy Adelaide, (F_2 Tas x (F_2 Tas x wh)) = ¾ Tas, b. 5 Aug. 1911, living 1939 age 27/6, still living at Cape Barren Island 1949. f. Isaac Beeton m. Olive Brown. marr. Donald Leslie Brown. Measured as N1640. Had one albino child Ernest, 25 Aug. 1937; another albino son Denis about 1945, and a third.

(BEETON), LUCY, F_1 Tas, b. 1829, d. 7 July 1886, age 57. f. James Beaton m. Rachel Everett. marr. Edward Smith. Reference is made by Bishop Nixon, to her great weight (322 lbs.) when 25 years of age, in 1854.

(BEETON), MAISIE AMELIA, indet. b. 27 May 1933, living 1939 age 5/8, still living 1949. f. unknown m. Judith Beeton.

(BEETON), MARY ALICE ISABEL, also called Molly, (F_3 Tas x F_2 Tas), b. 22 May 1924, living 1939 age 14/8, still living 1949. f. Walter Beeton m. Rose Mansell. Measured as N.1643. after 1939 married Vincent Paul Maynard. has two girls.

(BEETON), MARY ALICE, also called May, F_2 Tas, b. 1866, d. 8 July 1936, age 70. f. James Beeton m. Rachel Everett.

(BEETON), MELBA LIVINIA, (F_2 Tas x (F_2 Tas x wh)), b. 3 Aug. 1913, living 1939 age 25/6, died after 1939. f. Isaac Beeton m. Olive Brown.

BROWN (BEETON), NORA, F_2 Tas, b. 1877-1878, d. 7 Oct. 1914, age 36-37. f. James Beeton m. Rachel Everett. marr. Henry William Brown.

(BEETON), RACHEL, (F_3 Tas x wh) = ¾ Tas, b. 1929 approx., living 1939 age 10 approx., still living in Launceston 1949. f. Victor Beeton m. Ivy Jones. in 1949 had one child (((F_4 Tas x wh) x wh).

MANSELL (BEETON), RACHEL MARY, (F_2 Tas x (F_1 Tas x F_1 Aus), b. 9 June 1895, living 1939 age 43/7, died at Cape Barren Island after 1939. f. Herbert Beeton m. Judith Thomas. Measured as N.1670.

BURGESS (BEETON), SYLVIA FRANCES, (F_2 Tas x F_3 Tas), b. 13 Dec. 1914, living 1939 age 24/1, still living in Launceston 1949. f. Walter Beeton. marr. Hector McDonald Burgess.

BLIGH, SAM, also called Blyth or Blythe, white. marr. Australian fullblood from Victoria.

(BLIGH), female, also called Blyth or Blythe, Australian fullblood, from Victoria. marr. Sam Bligh.

THOMAS (BLIGH), also called Blyth and Blythe, ELIZA, also called Elizabeth, F_1 Aus, b. 1845 approx., on Robbins Island, near coast of Tasmania, d. 1916, age 71 approx. f. Sam Bligh m. Australian full blood. marr. Capt. Phillip Thomas.

MAYNARD (BLIGH), EMMA, also called Blyth and Blythe, F_1 Aus, b. 1837, still living in 1920, died before 1939. f. Sam Bligh m. Australian full blood. marr. Henry Maynard.

BROWN (BONES), NELLIE, also called Bochm, white, marr. John William Brown, has one boy and one girl.

(BORLAND), FLORENCE, white, b. 1875, d. 16 June 1904, age 29. marr. James Thomas Mansell.

BRIGGS, GEORGE, white, b. age. f. m.

BRIGGS, JOHN, F_1 Tas, b. age f. George Briggs m. Tasmanian full-blood. marr. 1844 to F_1 Aus, name not recorded. had ten children; descendants are in Victoria.

(BRIGGS), "A" female, Tas fb., b. age f. m. marr. George Briggs, before 1816.

(BRIGGS), "B" female, Tas fb., b. age f. m. marr. George Briggs, before 1816.

FENTON (BRIGGS), ANNIE, F_1 Tas, b. prior to 1840, lived until after 1876. f. George Briggs m. Tasmanian full blood. marr. James Fenton.

BROWN, male, ((F_2 Tas x wh) x wh) = ¾ Tas, b. 1931 approx., living 1939 age 8 approx., not later information. f. John William Brown m. Nellie Bones.

BROWN, ANGUS, ¼ Aus, b. 7 Aug. 1868, d. before 1880, age uncertain. f. William Brown m. Sarah Maynard.

BROWN, BENJAMIN GEORGE, (F_2 Tas x wh) = ¾ Tas, b. 31 July 1898, living 1939 age 40/6, still living in Tasmania 1949, unmarried. f. William Brown m. Frances Maynard.

BROWN, BENJAMIN WILLIAM senior, ¼ Aus, b. 1876, d. 29 Dec. 1897, age 21. f. William Brown m. Sarah Maynard.

BROWN, BENJAMIN WILLIAM, junior, also called Leslie William and Leslie, (F_2 Tas x ¼ Aus), b. 24 June 1897, living 1939 age 41/7, still living 1949 at Cape Barren Island. f. Henry Brown m. Olive Everett. marr. Leila Thomas Maynard and Kathleen Mansell. Measured as N.1654.

BROWN, CLARENCE WILLIAM, ¼ Aus, b. 21 June 1878, living 1939 age 60/7. f. William Brown (Riddle), m. Sarah Maynard. marr. Frances Amelia Mansell. no family; adopted John Peter Mansell. Measured as N.1588.

BROWN, CLAUDE EYRE, (F_2 Tas x wh) = ¾ Tas, b. 2 May 1891, living 1939 age 47/9, still living at Cape Barren Island 1949. f. William Brown m. Mary Smith. marr. Frances Thomas. Measured as N.1589.

BROWN, CYRIL ALFRED, (F_3 Tas x ¾ Tas), b. 8 Feb. 1921, living 1939 age 18/0; no later information. f. Willard Brown m. Elsie Smith.

BROWN, DEVONY NORTON, also called Devon, ¾ Tas x (F_2 Tas x ¼ Aus), b. 8 Sept. 1925, living 1939 age 13/4, still living 1949 at Cape Barren Island, unmarried. f. Benjamin Brown m. Leila Maynard. Measured as N.1648.

BROWN, DONALD LESLIE, (F_2 Tas x ¼ Aus), b. 1 Oct. 1904, living 1939 age 34/4, d. at Lady Barron 1948. f. Harry Brown m. Olive Everett. marr. Louisa Adelaide Beeton. Measured as N.1599.

BROWN, EDWIN ERNEST, also called Ted, Edward Ernest, white. marr. Grace Madeline Maynard.

BROWN, ELVIN, (F_2 Tas x ¼ Aus) x F_3 Tas, b. 1919 approx., living 1939 age 20 approx., still living 1949 in Tasmania. f. Willard Brown m. Elsie Smith.

BROWN, ERNEST GEORGE, ⅛ Aus, b. 5 May 1897, d. 1916, age 19. f. Edwin Brown m. Grace Maynard.

BROWN, ERNEST WINSTON, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_2 Tas x wh)), b. 25 Aug. 1937, d. 13 Oct. 1938, age 1/2. f. Donald Brown m. Louisa Beeton. was an albino with pink eyes and white hair.

BROWN, FREDERICK WILLIAM, ¼ Aus, b. 10 Aug. 1880, living 1939 age 59, d. in Launceston after 1939, date not traced. f. William Brown m. Sarah Maynard.

BROWN, GAZELY, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_2 Tas x wh)), d. age 6 months. f. Donald Brown m. Louisa Beeton.

BROWN, GEORGE WILLIAM, (¼ Tas x ¼ Aus), b. 9 Nov. 1907, living 1939 age 31/2, still living at Cape Barren Island 1949. f. William Brown m. Esther Burgess. marr. Jane Beadon Herbert Beeton. Measured as N.1635.

BROWN, HARNEY BURWOOD, (F_3 Tas x ¼ Aus), b. 27 Feb. 1932, living 1939 age 6/11, d. 8 Aug. 1941. f. Henry William Brown Florence Mansell.

BROWN, HARVEY GARFIELD, (F_3 Tas x ¼ Aus), b. 18 July 1922, living 1939 age 16/6, still living at Cape Barren Island 1949. f. Henry Brown m. Lily Mansell. Measured as N.1641. after 1939 married Athalie Livinia Maynard. has two boys and two girls.

BROWN, HENRY GEORGE, also called Harry, (F_2 Tas x ¼ Aus), b. 18 July 1894, living 1939 age 44/6, d. at Cape Barren Island 1947. First World War veteran. f. Henry William Brown m. Olive Everett. Measured as N.1636.

BROWN, HENRY WILLIAM, also called Harry, Bunny, ¼ Aus, b. 7 March 1866, living 1939 age 72/9, d. 7 March 1944 at Cape Barren Island. f. William Brown (Riddle) m. Sarah Maynard. marr. Olive Mary Everett, Nora Beeton, Lily May Mansell and Florence Maud Mansell. Measured as N.1701.

BROWN, IAN, (F_2 Tas x (F_2 Tas x wh)) x (F_2 Tas x ¼ Aus), b. 1934, d. 30 Nov. 1937, age 3. f. Donald Brown m. Louisa Beeton.

BROWN, IVAN, also called Godfrey Ivan, (¼ Tas x ¼ Aus) x F_3 Tas, b. 11 July 1933, living 1939 age 5/6, still living 1949 in Launceston. f. George William Brown m. Jane B. H. Beeton.

BROWN, JAMES RICHARD, ⅛ Aus, b. 10 June 1899, d. 18 June 1899, age 8 days. f. Edwin Brown m. Grace Maynard.

BROWN, JOHN WILLIAM, (F_2 Tas x wh) = ¾ Tas, b. 24 Nov. 1902, living 1939 age 36/2, still living in Launceston 1949. f. William Brown m. Frances Maynard. marr. Nellie Bones (Boehm), white. has one boy, one girl.

BROWN, LESLIE EUGENE, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_2 Tas x wh)), b. 30 Nov. 1927, living 1939 age 11/2, still living 1949 at Cape Barren Island. f. Donald Leslie Brown m. Louisa Adelaide Beeton. Measured as N.1631.

BROWN, LINDSAY GORDON, F_2 Tas x (F_2 Tas x wh)) = ⅜ Tas, b. 13 April 1928, living 1939 age 10/9, still living 1949 in Launceston. f. John Brown m. Jane Beeton.

BROWN, LIONEL GOLFIN, (F_3 Tas x ¼ Aus), b. 6 March 1924, living 1939 age 14/11, d. while serving in Army 5 June 1943. f. Henry Brown m. Lily Mansell. Measured as N.1661.

BROWN, MARK, also called Marcus Blake Norman, (F_2 Tas x ¼ Aus), b. 30 Oct. 1895, d. 1914-1918 at World War I, age 21 approx. f. Henry Brown m. Olive Everett.

BROWN, MARCUS BLAKE NORMAN, junior, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 21 Nov. 1919, living 1939 age 19/2, no later information. f. Willard Brown m. Elsie Smith.

BROWN, MORRIS DESMOND, ¾ Tas x (F_2 Tas x ¼ Aus), b. 2 Dec. 1938, living 1939 age 15/2, still living 1949 at Cape Barren Island, unmarried. f. Benjamin Brown m. Leila Maynard.

BROWN, NORTON GODFREY, (½ Tas x ½ Aus) x F. Tas, b. 1930 approx., d. 1931 approx. f. George Brown m. Jane Beeton.

BROWN, OLIVER STANLEY, (F_2 Tas x (F_2 Tas x ½ Aus)), b. 7 July 1918, living 1939 age 20/6, still living in Hobart 1949. f. Willard Brown m. Elsie Smith.

BROWN, RAYMOND, ((F_2 Tas x wh) x wh) = ¼ Tas, b. 1929 approx., living 1939 age 10 approx., still living 1949. f. John William Brown m. Nellie Bones.

BROWN, REX MILTON, ¾ Tas x (F_2 Tas x ¼ Aus), b. 30 Aug. 1929, d. 23 May 1932, age 2/9. f. Benjamin Brown m. Leila Maynard.

BROWN, RICHARD JOHN, (F_3 Tas x ¼ Aus), b. 1921 approx., living 1939 age 18 approx., living in Launceston 1949. f. Richard Brown m. Emily Mansell. after 1939 marr. white (Bone).

BROWN, RICHARD WILLIAM, ¼ Aus, b. 22 May 1874, d. 25 Oct. 1934, age 60/5. f. William Richard Brown m. Sarah Maynard.

BROWN, TERENCE DALLAS, (¾ Tas x ¼ Aus) x F_3 Tas, b. 3 Jan. 1939, living 1939 age 1 month, living 1949 in Launceston. f. George Brown m. Jane Beeton.

BROWN, VICTOR GEORGE, (¾ Tas x ¼ Aus) x F_3 Tas, b. 1 Feb. 1935, living 1939 age 4/0, still living 1949 at Cape Barren Island. f. George Brown m. Jane Beeton.

BROWN, WILLARD STANLEY, (F_2 Tas x ¼ Aus), b. 12 Sept. 1899, living 1939 age 39/4, still living 1949 in either Hobart or Melbourne. f. Henry Brown m. Olive Everett. marr. Elsie Lavinia Smith.

BROWN, WILLIAM HENRY, ¼ Aus, b. 7 July 1867, d. 28 July 1926, age 59/1. f. William Richard Brown m. Sarah Maynard. marr. Emily Everett and Esther Burgess.

BROWN, WILLIAM RICHARD, also called Riddle, white, b. 1839, d. 13 Aug. 1911, age 72. marr. Sarah Maynard, Mary Ann Smith and Frances Lydia Maynard. Born in Tasmania. Brought to Furneaux Group by John Riddle and at first went under the name of William Richard Riddle.

(BROWN), ALBERTA, (F_2 Tas x ¼ Aus), b. 19 Aug. 1902, d. 19 May 1911, age 8/9. f. Henry Brown m. Olive Everett.

WEST (BROWN), ALMA LILY, also called Lilly Jane, (F_2 Tas x ¼ Aus), b. 28 Dec. 1889, living 1939 age 49/1, d. in Launceston about 1945. f. Henry Brown m. Olive Everett. marr. John Arthur West.

(BROWN), AUDREY FRANCES, (¾ Tas x ¼ Aus) x F_3 Tas, b. 12 Sept. 1933, d. 18 Oct. 1933, age 1 month. f. George Brown m. Jane Beeton.

(BROWN), BELLA LEON, also called Isabel, F_3 Tas x ¼ Aus, b. 2 Sept. 1927, d. 18 Dec. 1928, age 1/4. f. Henry Brown m. Florence Mansell.

(BROWN), BETTY ((F_2 Tas x wh) x wh) = ¼ Tas, b. 1934 approx., living 1939 age 5 approx., still living 1949. f. John William Brown m. Nellie Bones. since 1939 marr. Baden Edward Maynard.

BURGESS (BROWN), CAROLINE FRANCES, (F_2 Tas x wh), b. 1896 or 1897, living 1939 age 41 approx., still living in Launceston 1949. f. Richard Brown m. Frances Maynard. marr. Sydney Burgess.

(BROWN), CLISSIE ISLA, ¾ Tas x (F_2 Tas x ¼ Aus), b. 11 Sept. 1921, living 1939 age 17/4, still living 1949 at Cape Barren Island, unmarried. f. Benjamin Brown m. Leila Maynard. Measured as N.1685.

(BROWN), DORIS ESME, ¼ Aus, b. 4 Aug. 1907, living 1939 age 31/6, still living at Launceston 1949. f. Edwin Brown m. Grace Maynard.

(BROWN), DOROTHY, (¾ Tas x ¼ Aus) x F_3 Tas, b. 30 Oct. 1937, d. 8 Aug. 1938, age 9 months. f. George Brown m. Jane Beeton.

BEETON (BROWN), ELVIE FLORENCE, (F_2 Tas x wh) x ((F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus)), b. 26 Nov. 1921, living 1939 age 17/3, d. after 1939. f. Claude Brown m. Frances Thomas.

REYNOLDS (BROWN), FLORENCE MATILDA, ¼ Aus, b. 22 Nov. 1892, living 1939 age 46/2, still living at Whitemark 1949. f. Edwin Brown m. Grace Maynard. marr. Reynolds, white.

(BROWN), GLADYS, (F_3 Tas x ¼ Aus), b. 11 Jan. 1930, living 1939 age 9/0, still living in 1949 at Hobart, unmarried. f. Henry Brown m. Florence Mansell. Measured as N.1703.

JOHNSON (BROWN), HENRIETTA OLIVE VICTORIA, also called Ettie, (F_2 Tas x ¼ Aus), b. 1 Feb. 1901, living 1939 age 38/0, d. 20 Oct. 1944 at Cape Barren Island. f. Henry Brown m. Olive Everett. marr. Jack Johnson. Measured as N.1691.

ROBINSON (BROWN), ISABEL JESSIE, ¼ Aus, b. 11 July 1902, living 1939 age 36/6, still living in Launceston 1949. f. Edwin Brown m. Grace Madeline Maynard. marr. Horace Frederick Robinson.

(BROWN), JOYCE, see (Mansell), Joyce.

(BROWN), LEILA ALICE, ¼ Aus, b. 20 Oct. 1909, living 1939 age 29/3. f. Edwin Brown m. Grace Maynard.

SUMMERS (BROWN), LIALETA OLIVE, (⅜ Tas x (F_2 Tas x ¼ Aus)), b. 23 May 1920, living 1939 age 18/8, still living 1949. f. Benjamin Brown, jun. m. Leila Maynard, marr. Ronald Edward Summers. Measured as N.1677. Since 1939 has had two boys, one girl.

MAYNARD (BROWN), LILY JANE, also called Lillie, ¼ Aus, b. 4 Dec. 1870, d. 16 July 1889, age 18/7. f. William Brown m. Sarah Maynard. marr. George Maynard.

(BROWN), LILY MAYNARD, ¼ Tas, b. May 1900, d. 20 Nov. 1900, age 6 months. f. William Brown m. Frances Maynard.

(BROWN), LOLA ALBERTA, (F_2 Tas x ¼ Aus), b. 4 Dec. 1920, d. 26 July 1926, age 5/8. f. Henry Brown m. Lily Mansell.

(BROWN), LORNA VICTORIA, (F_2 Tas x ¼ Aus), b. 18 Oct. 1919, living 1939 age 19/3, d. before 1949. f. Henry Brown m. Lily Mansell.

(BROWN), LYDIA PRISCILLA, ¼ Aus, b. 26 Dec. 1895, living 1939 age 43/1. f. Edwin Brown m. Grace Maynard.

(BROWN), MADELINE VICTORIA, ¼ Aus, b. 2 May 1900, living 1939 age 38/9, still living in Launceston 1949. f. Edwin Brown m. Grace Maynard.

(BROWN), ADELA, also called Melita, or Melieta, (F_2 Tas x wh) x ((F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus)), b. 28 May 1924, d. age . f. Claude Eyre Brown m. Frances Thomas. Adela was partial albino, with blue eyes.

MAYNARD (BROWN), MARIE ISABEL, also called Mary Isabel, ¼ Tas, b. 23 Dec. 1893, living 1939 age 45/1. f. William Richard Brown m. Mary Ann Smith. marr. Edgar Leopold Maynard.

EVERETT (BROWN), MARY, ¼ Aus, b. 28 July 1864, d. 18 Dec. 1887, age 23/5. f. William Richard Brown m. Sarah Maynard. marr. James Armstrong Everett.

(BROWN), MARY, ¼ Tas, b. 26 Sept. 1901, d. 3 Oct. 1901, age 3 days. f. William Brown m. Frances Maynard.

(BROWN), MARY FRANCES, also called Marion Frances, (F_2 Tas x wh) x ((F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus)), b. 11 April 1920, d. 30 May 1937, age 17/1. f. Claude Brown m. Frances Thomas.

MANSELL (BROWN), MAUDE ADELINE, also called Alice Adeline Maud, (F_2 Tas x ¼ Aus), b. 13 Feb. 1891, living 1939 age 47/11, d. in Launceston 1940. f. Henry Brown m. Olive Everett. marr. John Peter Mansell sen., and George Ernest Mansell.

(BROWN), MONA LILY, (F_2 Tas x ¼ Aus), b. 18 June 1925, living 1939 age 13/7, still living 1949. f. Henry Brown m. Lily Mansell. after 1939 marr. Hubert James Maynard. Measured as N.1615.

(BROWN), OLIVE ALBERTA, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_2 Tas x wh)), b. 17 Aug. 1929, d. 1936, age 7. f. Donald Leslie Brown m. Louisa Adelaide Beeton.

BEETON (BROWN), OLIVE MAUDE, also called Lavinia Maude (F_2 Tas x wh), b. 4 May 1889, d. 9 May 1923, age 34/0. f. William Brown m. Mary Smith. marr. Isaac Beeton.

(BROWN), PHYLLIS EVA, (¾ Tas x ¼ Aus) x F_2 Tas, b. 30 Oct. 1937, living 1939 age 1/3, still living 1949 at Cape Barren Island. f. George William Brown m. Jane B. H. Beeton.

EVERETT (BROWN), REBECCA, ¼ Aus, b. 1873, d. 1929 approx., age 56 approx. f. William Brown m. Sarah Maynard. marr. Benvenuto Stanley Everett.

(BROWN), SARAH FRANCES, (F_2 Tas x wh), b. July 1904, d. 18 Sept. 1904, age 2 months. f. William Brown m. Frances Maynard.

(BROWN), SARAH JANE, (F_2 Tas x wh) = ¾ Tas, b. 25 Sept. 1892, d. 30 Sept. 1892, age 5 days. f. William Brown m. Mary Smith.

MANSELL (BROWN), SARAH RACHEL, (F_2 Tas x wh) = ¾ Tas, b. 10 July 1908, living 1939 age 30/6, still living at Cape Barren Island 1949. f. William Richard Brown m. Frances Lydia Maynard. marr. Claude Burwood Mansell.

(BROWN), SHEILA ALBERTA, (F_3 Tas x (F_2 Tas x ¾ Aus)), b. 5 Aug. 1917, living 1939 age 21/6, still living 1949. f. Willard Brown m. Elsie Smith. after 1939 marr. white. away from Cape Barren.

(BROWN), SHIRLEY OLIVE, see (MANSELL), Shirley Olive.

(BROWN), ZORA LIDIA, (F_3 Tas x ¼ Aus), b. 19 June 1919, living 1939 age 19/7, still living in Launceston in 1949, unmarried. f. Richard Brown m. Emily Mansell.

BURGESS, male, (F_2 Tas x wh) x (F_2 Tas x F_1 Aus), b. d. as infant. f. George William Burgess jun. m. Sarah Rachel Maynard.

BURGESS, ALLAN GODFREY, (¼ Tas x (F_1 Aus x F_2 Tas)), b. 12 Nov. 1928, living 1939 age 10/2, still living in Launceston 1949. f. Allan Burgess m. Emily Maynard. Twin of Richard Henry Burgess. Measured as N.1650.

BURGESS, ALAN MONTGOMERY, (F_2 Tas x wh) = ¾ Tas, b. 30 July 1891, living 1939 age 47/7, still living in Launceston 1949. f. George William Burgess senior m. Julia Ann Mansell. marr. to Emily Maynard, now marr. to white.

BURGESS, ATHOL MCDONALD, ((¼ Tas) x (F_2 Tas x F_1 Aus)), x (F_2 Tas x F_2 Tas), b. 15 Aug. 1934, d. 17 Aug. 1934, age 2 days. f. Hector Burgess m. Sylvia Beeton.

BURGESS, DOUGLAS, (¼ Tas) x (F_2 Tas x F_1 Aus) x (F_2 Tas x F_3 Tas), b. 18 Aug. 1935, living 1939 age 3/5, living still in Launceston 1949. f. Hector Burgess m. Sylvia Beeton.

BURGESS, EDMUND EDWIN, also called Ted, (¼ Tas) x (F_2 Tas x F_1 Aus), b. 22 Sept. 1921, living 1939 age 17/4 still living 1949. f. George William Burgess, junior, m. Sarah Rachel Maynard. after 1939 marr. Julia Lavinia Beeton. has one boy. Measured as N.1639.

BURGESS, GEOFFREY JAMES, (¼ Tas x (F_2 Tas x F_1 Aus)) x (F_2 Tas x F_3 Tas), b. 23 July 1937, living 1939 age 1/6, still living in Launceston 1949. f. Hector Burgess m. Sylvia Beeton.

BURGESS, GEORGE WILLIAM, senior, also called Henry, George Henry, white, b. 1859, d. 12 July 1929, age 70. marr. Julia Ann Mansell. came from Scandinavia, was a blue-eyed Norwegian type (according to Mr. Hugh Barrett).

BURGESS, GEORGE WILLIAM, junior, (F_2 Tas x wh) = ¾ Tas, b. 1883 approx., living 1939 age 55 approx., d. in Launceston about 1945. f. George William Burgess, senior, m. Julia Ann Mansell. marr. Sarah Rachel Beeton Maynard.

BURGESS, HARVEY RUSSELL, ¾ Tas x (F_2 Tas x F_1 Aus), b. 19 Aug. 1920. d. 24 Aug. 1930, age 5 days. f. George William Burgess, junior, m. Sarah Rachel Maynard.

BURGESS, HECTOR MACDONALD, ¾ Tas x (F_2 Tas x F_1 Aus), b. 10 Dec. 1913, living 1939 age 25/1, still living in Launceston 1949. f. George Burgess m. Sarah Maynard. Measured as N.1604.

BURGESS, HERBERT THOMAS, ¾ Tas, b. 27 Oct. 1889, living 1939 age 49/3, unmarried, still living at Cape Barren Island 1949. f. George Burgess m. Julia Mansell.

BURGESS, HORACE EDWARD, (F_2 Tas x wh) x (F_2 Tas x wh), b. 26 Aug. 1921, living 1939 age 17/5, still living in Launceston 1949. f. Sydney Burgess m. Caroline Frances Brown. after return from World War II. marr. Lockwood, white.

BURGESS, IAN RICHARD DAVIS, (¼ Tas) x (F_2 Tas x F_1 Aus), b. 10 Feb. 1912, d. 3 June 1913, age 1/4. f. George William Burgess, junior m. Sarah Rachel Maynard.

BURGESS, MALCOLM BEETON, (¼ Tas) x (F_2 Tas x F_1 Aus), b. 25 July 1908, living 1939 age 30/6, still living, unmarried at Cape Barren Island 1949. f. George William Burgess, junior m. Sarah Rachel Maynard.

BURGESS, PERCY EDWARD, (F_2 Tas x wh) = ¾ Tas, b. 4 Dec. 1885, living 1939 age 53/2, still living Cape Barren Island 1949. f. George William Burgess, senior m. Julia Ann Mansell. marr. Gladys Mary Lawrie, white. has albinic patches on face.

BURGESS, REGINALD DAVID, (¾ Tas) x (F₂ Tas x F₁ Aus), b. 6 Jan. 1916, living 1939 age 23/1, still living in Launceston 1949. f. George William Burgess m. Sarah Rachel Maynard. after 1939 marr. Edna Mary Maynard; after 1942 marr. Jean Burgess.

BURGESS, RICHARD HENRY, ((¾ Tas) x F₂ Tas x F₁ Aus)), b. 12 Nov. 1928, living 1939 age 10/2, still living in Launceston 1949. f. Allan Burgess m. Emily Maynard. Measured as N.1649.

BURGESS, SYDNEY, (F₂ Tas x wh) = ¾ Tas, b. 11 Feb. 1893, living 1939 age 46/0, still living in Launceston 1949. f. George William Burgess, senior, m. Julia Ann Mansell. marr. Caroline Frances Brown.

BURGESS, SYDNEY GEORGE, (F₂ Tas x wh) x (F₂ Tas x wh), b. 30 Aug. 1926, living 1939 age 12/5, still living in Launceston 1949, unmarried. f. Sydney Burgess m. Caroline Frances Brown.

BURGESS, WARWICK EDWARD, (F₂ Tas x F₂ Tas) x (¼ Tas x (F₂ Tas x F₁ Aus)), b. July 1938, d. 28 Oct. 1938, age three months. f. Hector Burgess m. Sylvia Beeton.

(BURGESS), AMY LOUISE, (F₂ Tas x wh) x (F₂ Tas x wh), b. 24 Oct. 1927, living 1939 age 11/3, still living in Launceston 1949, unmarried. f. Sydney Burgess m. Caroline Frances Brown.

EVERETT (BURGESS), ESTHER LILY, (F₂ Tas x wh) = ¾ Tas, b. 29 Feb. 1888, living 1939 age 50/11, d. at Cape Barren Island 28 May 1948. f. George William Burgess, senior, m. Julia Ann Mansell. marr. William Henry Brown and Albert Everett.

(BURGESS), EVELIEN CAROLINE, (F₂ Tas x wh) x (F₂ Tas x wh), b. 8 May 1924, living 1939 age 14/9, still living in Launceston 1949. f. Sydney Burgess m. Caroline Frances Brown. marr. Johnston, white.

(BURGESS), JEAN ANN FRANCIS, (F₂ Tas x wh) x (F₂ Tas x wh), b. 16 Nov. 1922, living 1939 age 16/2, living in Launceston 1949. f. Sydney Burgess m. Caroline Frances Brown. after 1942 marr. Reginald David Burgess.

(BURGESS), JULIA ANN, ((F₂ Tas x wh) x (wh)) = ¾ Tas, b. 8 Sept. 1935, living 1939 age 3/5, d. of burns 17 April 1947. f. Percy Edward Burgess m. Gladys Mary Lawrie.

SAINTIE (BURGESS), JULIA MARIA SARAH, (F₂ Tas x wh) = ¾ Tas, b. 26 April 1896, d. 2 May 1935, age 39/0. f. George William Burgess, senior, m. Julia Ann Mansell. marr. Morris Saintie, white.

(BURGESS), RACHEL AMELIA, (indeterminable trihybrid 5th generation), b. 14 Aug. 1934, living 1939 age 4/5, still living 1949. f. unknown m. Valerie Amelia Burgess.

(BURGESS), SARAH, (F₂ Tas x F₁ Aus) x ¾ Tas, b. 1905, d. 14 April 1913, age 8. f. George William Burgess, jun., m. Sarah Rachel Maynard.

SAINTIE (BURGESS), VALERIE AMELIA, (¾ Tas x (F₂ Tas x F₁ Aus)), b. 27 Dec. 1918, living 1939 age 20/1, still living 1949. f. George William Burgess, jun., m. Sarah Rachel Maynard. marr. Mauriee Claude Saintie, junior, also called Sainty.

BURWOOD, male, *see* Smith.

(CHAPPELL), EVA, *see* MAYNARD (Stafford) Eva.

COCHRANE, COTTREL, white, married Sarah, Tasmanian full blood.

(COCHRANE), SARAH, Tasmanian full blood, marr. Cottrel Cochrane, white and Burwood, also called Smith, white, sealers on Bass Strait Islands. had five F₁ Tas children.

SMITH (COCHRANE), FANNY, F₁ Tas b. 1835. f. Cottrel Cochrane m. Sarah, Tasmanian full blood. marr. William Smith, white of Irish Town (now Nicholls Rivulet). Bonwick (1884, p. 199) describes this marriage. Roth (1890, Appendix F, note) discusses her racial constitution. Roth (1899, Appendix G) gives three photographs of her.

ARTHUR (COCHRANE), MARY ANN, F₁ Tas, b. d. f. Cottrel Cochrane m. Sarah. marr. Walter George Arthur, Tasmanian full blood; no children. Bonwick (1884, p. 199) refers to Mary Ann.

COHEN, *see* STAFFORD.

CONSTANTINE, SID, white, marr. Ethel Nancy Lane Smith.

(CONSTANTINE), JEAN, (F₂ Tas x wh) = ¾ Tas, b. 1920 approx., living 1939 age 19 approx., still living 1949 in Launceston. f. Sid Constantine m. Ethel Nancy Lane Smith.

(CONSTANTINE), female, (F_2 Tas x wh) = ¾ Tas. b. 1925 approx., no further information. f. Sid Constantine m. Ethel Nancy Lane Smith.

EVERETT, male, F_2 Tas, b. 24 Aug. 1873, d. 1874, age one year. f. George Everett m. Jane Beeton.

EVERETT, ALBERT, also called Albert Henry and Albert Beeton, F_2 Tas, b. 21 Aug. 1866, d. 18 Nov. 1938, age 72/3. f. George Everett m. Jane Beeton. marr. Esther Lily Burgess (Brown).

EVERETT, ALBERT STANLEY, (F_2 Tas x ¾ Aus), b. 18 Sept. 1906, living 1939 age 32/4, still living at Cape Barren Island 1949. f. Benvenuto Everett m. Rebecca Brown. marr. Vera Summers. has had one daughter since 1939. Measured as N.1656.

EVERETT, BENJAMIN GEORGE, (F_2 Tas x ¾ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 2 Oct. 1932, living 1939 age 6/4, still living at Cape Barren Island 1949. f. George Henry Paul Everett m. Harriet Isabel Beeton.

EVERETT, BENJAMIN JAMES, ⅝ Tas x ((F_2 Tas x (F_2 Tas x F_1 Aus)), b. 28 Sept. 1926, d. 21 July 1930, age 3/10. f. Julian Everett m. Beatriee Maynard.

EVERETT, BENVENUTO STANLEY, F_2 Tas. b. 1873, living 1939 age 65, d. 1939. f. George Everett m. Jane Beeton. marr. Rebecca Brown. Measured as N.1584.

EVERETT, DALTON GODFREY, (⅞ Tas x (F_2 Tas) x (F_2 Tas x F_1 Aus)), b. 30 Aug. 1921, living 1939 age 17/5, still living at Cape Barren Island 1949. f. Julian Everett m. Beatrice Maynard. Measured as N.1595. after 1939 married Howes, white; one son, of 6th generation, b. Aug. 1948.

EVERETT, EARL STANLEY, (F_2 Tas x ¾ Aus) x (F_2 Tas, b. 6 Jan. 1935, living 1939 age 4/1, still living at Cape Barren Island 1949. f. Albert Everett m. Vera Summers.

EVERETT, EDGAR, ⅝ Tas x (F_2 Tas) x (F_2 Tas x F_1 Aus)), b. 16 Oct. 1935, d. 19 Oct. 1935, age 3 days. f. Julian Everett m. Beatriee Maynard.

EVERETT, ERIC LEOPOLD, ((F_2 Tas x ¾ Aus) x ¾ Tas) x ¾ Maori white, b. 24 Jan. 1937, living 1939 age 2/0. f. Keith Everett m. Ena Maynard.

EVERETT, GEOFFREY LIONEL, ⅝ Tas x ((F_2 Tas) x (F_2 Tas x F_1 Aus)), b. 27 July 1922, living 1939 age 16/6, still living in Gippsland 1949. f. Julian Everett m. Beatrice Maynard. Measured as N.1587.

EVERETT, GEORGE, senior, F_1 Tas, b. 1835, d. 21 June 1883, age 48. f. James Everett m. Tasmanian full blood. marr. Jane Beeton.

EVERETT, GEORGE, junior, also called George Herbert, F_2 Tas. b. 10 Jan. 1863, d. 1899 approx. age 36 approx., unmarried. f. George Everett, senior m. Jane Beeton.

EVERETT, GEORGE HENRY PAUL, (F_2 Tas x ¾ Aus), b. 1 Sept. 1902, living 1939 age 36/5, still living in Launceston 1949. f. Benvenuto Everett m. Rebecca Brown. marr. Isabel Beeton. Measured as N.1600.

EVERETT, HENRY JAMES ERIC, ¾ Maori white, b. 15 Dec. 1910, living, age 28/2. f. James Armstrong Everett m. Florence Williams.

EVERETT, JAMES, white, b. 1794, d. 3 June 1876, age 82; on his death a memorial card, using a different name was sent from England to Jane Beeton. marr. Tasmanian full blood. later Betty a Maori woman.

EVERETT, JAMES, also called James Henry Paul, F_2 Tas, b. 27 Nov. 1877, d. 16 Mar. 1881, age 3/4. f. George Everett m. Jane Beeton.

EVERETT, JAMES, junior, (F_1 Maori white x ¾ Aus), b. 26 Oct. 1887, d. 27 Oct. 1887, age 1 day. f. James Everett m. Mary Brown.

EVERETT, JAMES ARMSTRONG, F_1 Maori white, b. age f. James Everett m. Betty. marr. Mary Brown also Florence Isabel Williams.

EVERETT, also called Maynard, JULIAN CLIFFORD, F_2 Tas x (F_2 Tas x F_1 Aus), b. 21 Sept. 1896, living 1939 age 42/4, still living at Cape Barren Island 1949. f. George Maynard m. Julia Maynard. marr. Beatrice Evelyn Maynard. Measured as N.1579.

EVERETT, KEITH, ¾ Maori white, b. 15 June 1913, living, age 25/7. f. James Everett m. Florenee Williams. marr. Ena Gwendoline Maynard. since 1939 has added two boys, one girl to family.

EVERETT, KENNETH, *see* Smith, Kenneth.

EVERETT, LEITH, ((F_2 Tas x ¾ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 9 Feb. 1930, d. June 1930, age 4 months. f. George Everett m. Harriet Beeton.

EVERETT, MELVIN MAXWELL, also called Mervyn Maxwell, (F_2 Tas x ¼ Aus) x Fx Tas, b. 6 Oct. 1930, living 1939 age 8/4, still living 1949 at Cape Barren Island. f. Albert Everett m. Vera Summers. Measured as N.1675.

EVERETT, MERVYN JAMES, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 26 Dec. 1938, living 1939 age 1 month. f. George Everett m. Harriet Beeton.

EVERETT, ROBERT, F_1 Maori white, b. 1861, d. 23 Nov. 1875, age 14. f. James Everett m. Betty (Maori).

EVERETT, ROBERT BRUCE, ¼ Maori white, b. 22 Dec. 1917, living 1939 age 21/1. f. James Armstrong Everett m. Florence Williams.

EVERETT, ROYCE TRANSVAAL, ⅜ Tas x (F_2 Tas) x F_2 Tas x F_1 Aus)), b. 2 July 1925, d. 1 July 1936, age 11/0. f. Julian Everett m. Beatrice Maynard.

(EVERETT), female, Tasmanian full blood; married as first wife to James Everett, white.

(EVERETT), female, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus), b. 1935 approx., d. age 4 hours. f. George Henry Paul Everett m. Harriet Isabel Beeton.

(EVERETT), female, trihybrid 5th generation, b. 12 May 1911, d. 14 May 1911, age 2 days. f. unknown. m. Myrtle Alice Everett.

MAYNARD (EVERETT), ADA MARY, F_2 Tas, b. 15 May 1861, d. 1908 approx., age 47 approx. f. George Everett m. Jane Beeton. marr. James Maynard.

(EVERETT), ALPHA VICTORIA, trihybrid 5th generation, b. 11 Oct. 1919, living 1939 age 19/3. f. unknown. m. Myrtle Alice Everett

MANSELL (EVERETT), BERYL KATHLEEN, ¼ Maori white, b. 10 April 1908, living 1939 age 30/10. f. James Everett m. Florence Isabel Williams. marr. Archibald Douglas Mansell.

EVERETT, BETTY, also called Elizabeth, Maori, b. 1833, d. 12 March 1891, age 58. marr. as second wife to James Everett, white.

(EVERETT), CECILIA FLORENCE, (F_2 Tas x ¼ Aus), b. 5 Feb. 1915, d. 1929 approx., at Scottsdale, age 14 approx. f. Benvenuto Everett m. Rebecca Brown.

(EVERETT), DORA LILY, indeterminable, b. 22 April 1926, living 1939 age 12/9, still living 1949. f. unknown m. Lily Everett.

(EVERETT), ELIZABETH, also called Betsy, F_2 Tas, b. 1854, d. 19 Sept. 1912, age 58. f. George Everett m. Jane Beeton.

(EVERETT), (SMITH), ELSIE MAUD, ((F_2 Tas x ¼ Aus) x F_2 Tas), b. 25 May 1924, living 1939 age 14/8, still living 1949. f. Tasman Smith m. Myrtle Everett. after 1939 marr. James Maynard, a cripple. has two male children.

BROWN (EVERETT), EMILY ALICE, F_2 Tas, b. 9 Jan. 1869, d. 7 Mar. 1896, age 27/2. f. George Everett m. Jane Beeton. marr. William Henry Brown.

MAYNARD (EVERETT), FANNY, also called Frances, F_1 Tas, b. 1841 approx., d. 1869 Approx., age f. James Everett m. Tasmanian full blood. marr. John Maynard.

(EVERETT), GERTRUDE, F_1 Maori white, b. 1867-1870, d. 18 Dec. 1913, age 43-46. f. James Everett m. Betty (Maori).

ARMSTRONG (EVERETT), IVY VICTORIA ALBINA, (F_2 Tas x ¼ Aus), b. 20 May 1894, living 1939 age 44/8, still living at Flinders Island 1949. f. Benvenuto Everett m. Rebecca Brown. marr. Henry Isaac Armstrong.

(EVERETT), JOAN ELIZABETH, (F_2 Tas x ¼ Aus) x Fx Tas, b. 7 Aug. 1932, living 1939 age 5/6, still living 1949 at Cape Barren Island, unmarried. f. Albert Everett m. Vera Summers.

MAYNARD (EVERETT), LAURA FRANCES, F_2 Tas, b. 1860, d. 10 Oct. 1922, age 62. f. George Everett m. Jane Beeton. marr. Benjamin Maynard, senior.

(EVERETT), LENA, *see* (BEETON), Lena.

(EVERETT), LILY, (F_2 Tas x ¼ Aus), b. 1908 approx., d. 26 April 1926, age 18 approx. f. Benvenuto Everett m. Rebecca Brown.

(EVERETT), LUCY JANE, F_2 Tas, b. 1857 approx., d. 23 Jan. 1934, age 77 approx., unmarried. f. George Everett m. Jane Beeton.

(EVERETT), MARIE LILIAN, (F_2 Tas x ¼ Aus) x Fx Tas, b. 17 Nov. 1936, living 1939 age 2/2, still living 1949 at Cape Barren Island, unmarried. f. Albert Everett m. Vera Summers.

BROWN (EVERETT), MARY OLIVE, F_2 Tas, b. 6 Dec. 1870, d. 9 Jan. 1910, age 39/11. f. George Everett m. Jane Beeton. marr. Henry William Brown.

SMITH (EVERETT), MYRTLE ALICE, (F_2 Tas x ¼ Aus), b. 18 June 1896, d. 21 July 1926, age 30/1. f. Benvenuto Everett m. Rebecca Brown. marr. Tasman Smith.

BEETON (EVERETT), RACHEL, senior, F_1 Tas, b. 1841, d. 29 June 1879, age 38. f. James Everett m. Tasmanian full blood. marr. James Beeton.

BEETON (EVERETT), RACHEL ADELAIDE, F_2 Tas, b. 1880 d. 3 Aug. 1910, age 30. f. George Everett m. Jane Beeton. marr. Walter Victor Beeton.

(EVERETT), RUTH AMELIA, ⅜ Tas x ((F_2 Tas) x (F_2 Tas x F_1 Aus)), b. 16 Oct. 1929, living 1939 age 9/3, still living 1949 at Cape Barren Island. f. Julian Everett m. Beatrice Maynard. Measured as N.1698.

BEETON (EVERETT), SARAH, F_1 Tas, b. 1838, d. 16 July 1899 or 15 July 1900, age 61 or 62. f. James Everett m. Tasmanian full blood. marr. Henry Beeton.

(EVERETT), SARAH ELIZABETH, (F_1 Maori white x ¼ Aus), b. 17 June 1886, d. 17 June 1886, age 1 day. f. James Armstrong Everett m. Mary Brown.

BEETON (EVERETT), SARAH JANE, (F_2 Tas x ¼ Aus), b. 9 Feb. 1899, living 1939 age 40/0. f. Benvenuto Everett m. Rebecca Brown. marr. Clement Desmond Beeton.

(EVERETT), SHEILA GERTRUDE EMMA, ¼ Maori white, b. 7 Aug. 1915, d. 13 Nov. 1919, age 3/3. f. James Armstrong Everett m. Florence Isabel Williams.

(EVERETT), THEDA DAISY, ¼ Maori white, b. 5 April 1922, living 1939 age 16/10. f. James Armstrong Everett m. Florence Isabel Williams.

(EVERETT), VERIS ISABEL, also called Biddy, (F_2 Tas x ¼ Aus) x (F_2 Tas x F_1 Aus), b. 7 Nov. 1933, living 1939 age 5/3, still living at Cape Barren Island 1949. f. George Henry Paul Everett m. Harriet Isabel Beeton.

THOMAS (EVERETT), VIDA ROBENA, (F_2 Tas x ¼ Aus), b. 8 Jan. 1914, living 1939 age 25/0, d. at Cape Barren Island about 1940. f. Benvenuto Everett m. Rebecca Brown. marr. Ronald Edwin Thomas. Measured as N.1625. after 1939 married Gordon Thomas Maynard.

FENTON, JAMES, white, marr. Annie Briggs. F_1 Tas.

FENTON, WILLIAM HENRY, ¼ Tas, b. 30 Oct. 1876, d. 4 Nov. 1876, age 4 days. f. James Fenton m. Ann Briggs.

FENTON, WILLIAM HUGH, ¼ Tas, b. 23 June 1875, no later information. f. James Fenton m. Annie Briggs.

(FENTON), EDITH ANNIE, ¼ Tas, b. 17 Oct. 1873, no later information. f. James Fenton m. Annie Briggs.

FISHER, GEORGE, ¼ Aus, b. 1894-6, living 1939 age 43-5, unmarried, still living at Cape Barren Island 1949. f. John Fisher m. Maggie Summers.

FISHER, JACK, ¼ Aus, b. 1896 approx., d. at Great War 1914-18, age young adult. f. John Fisher m. Maggie Summers.

FISHER, JOHN, white. marr. Maggie Summers.

HART (FISHER), LYDIA, ¼ Aus, b. d. 1916, age young adult. f. John Fisher m. Maggie Summers. marr. Reg. Hart (Art). had two or more children.

FOSTER, male, white. marr. Australian full blood.

(FOSTER), female, fb. Aus. marr. Foster, male, white.

ARMSTRONG (FOSTER), JANE, F_1 Aus, b. 1815, d. 26 Nov. 1859, age 44. f. Foster m. fb. Aus. marr. Andrew Armstrong, senior.

GORE, CHARLIE, (F_1 Aus x wh) x wh = ¼ Aus, b. 1898 approx., living 1939 age 41 approx., still living in Tasmania 1949. f. Frank Gore m. May (Mable *sic*) Maynard.

GORE, FRANK, white. marr. May Maynard, ¼ Aus.

GORE, WILLIAM, (((F_1 Aus x wh) x white) ¼ Aus, b. 1894 approx., living 1939 age 45 approx., still living 1949. f. Frank Gore m. May (Mable) Maynard.

(GORE), MAUDE CLAIRE, (F_1 Aus x wh) x wh = ¼ Aus, b. 23 Nov. 1907, no later information. f. Frank Gore m. May (Mable) Maynard.

GREEN, male, b. d. age f. Vernard John Green m. Ruth Hyett.

GREEN, CYRIL ANDREW, (F_2 Tas x ¼ Aus) x white, b. 1915 approx., living 1939 age 24 approx., may have died in Melbourne about 1945. f. William John Green m. Ruby Ida Maynard.

GREEN, MORTON, (F_2 Tas x ¼ Aus) x wh., b. 1900 approx., living 1939 age 39 approx., still living in Launceston 1949. f. William Green m. Ruby Maynard. marr. Florence Evelyn West.

GREEN, VERNARD JOHN, also written Vernin Laund, (F_2 Tas x ¼ Aus) x wh, b. 22 July 1910, living 1939 age 28/6, killed at World War II. f. William John Green m. Ruby Ida Maynard.

GREEN, WILLIAM, (F_2 Tas x ¼ Aus) x wh, b. 1904 approx., believed living 1939, status in 1949 unknown. f. William John Green m. Ruby Ida Maynard.

GREEN, WILLIAM JOHN, white. marr. Ruby Ida Maynard.

(GREEN), MAUDE CLARE, (F_2 Tas x ¼ Aus) x wh, b. 23 Nov. 1907, living 1939 age 31/2, no later information. f. William John Green m. Ruby Ida Maynard.

(GREEN), RUBY LILIAN, ((F_2 Tas x ¼ Aus) x wh) x (wh), b. 12 March 1934, living 1939 age 5/0, still living 1949. f. Morton Green m. Florence Evelyn West.

ARMSTRONG (GUTSON), ELIZABETH, also called Lizzie, white, b. 1861, d. 13 Aug. 1884, age 23. marr. Thomas Armstrong.

HANDLEIRON, ELVIN, white. marr. Alice Isobel Smith.

HOLT, ARCHIBALD BADEN-POWELL, (F_2 Tas x wh) = ¾ Tas, b. 5 Sept. 1902, d. as infant. f. William Robertson (Holt) m. Ellen Smith.

HOLT, CHARLIE, (F_2 Tas x wh) = ¾ Tas, b. 1894 approx., living 1939 age 44 approx., no later information. f. William Robertson (Holt) m. Ellen Smith.

HOLT, FREDERICK, (F_2 Tas x wh) = ¾ Tas, b. 1901 approx., living 1939 age 37 approx., still living 1949. f. William Robertson (Holt) m. Ellen Smith. marr. Isabel Maynard.

HOLT, WILLIAM, senior, before death known as Robinson and Robertson children use all these names. d. 1902. marr. Ellen Smith.

HOLT, WILLIAM, junior, (F_2 Tas x wh) = ¾ Tas, b. 1896 approx., living 1939 age 42 approx., still living in Launceston 1949. f. William Robertson (Holt) m. Ellen Smith. marr. to white.

MANSELL (HOLT), JANE ELIZABETH, also called Jessie, F_2 Tas x wh, b. 18 May 1879, living 1939 age 59/8. f. William Robertson (i.e., Holt) m. Ellen Smith. marr. Edward Mansell.

MANSELL (HOLT), PAULINE, (F_2 Tas x wh), b. 1899 approx., d. 1922 approx., age 23 approx. f. William Robertson (Holt) m. Ellen Smith. marr. Archibald Douglas Mansell.

GREEN (HYETT), RUTH, no information, probably white. marr. Vernard John Green.

JOHNSON, JACK, white. marr. Henrietta Olive Victoria Brown.

JOHNSON, REX EDWARD, ((F_2 Tas x ¼ Aus) x wh), b. 28 May 1938, living 1939 age 8 months, still living 1944. f. Jack Johnson m. Henrietta Olive Victoria Brown.

(JOHNSON), SHIRLEY OLIVE, ((F_2 Tas x ¼ Aus) x wh), b. 20 Dec. 1935, living 1939 age 4/1, living at Cape Barren Island 1949. f. Jack Johnson m. Henrietta Olive Victoria Brown.

BEETON (JONES), IVY FLORENCE MAY, white, b. living 1939 age unknown, still living 1949. f. Alfred Jones m. . marr. Victor Harold Albert Beeton.

LAWRIE, DOUGLAS, (F_3 Tas x wh) = ¾ Tas, b. 1925 approx., living 1939 age 14 approx., still living 1949 in Launceston. f. Thomas Lawrie m. Elizabeth Smith.

LAWRIE, LAWRENCE, (F_3 Tas x wh) = ¾ Tas, b. 1927 approx., living 1939 age 12 approx., still living in Launceston 1949. f. Thomas Lawrie m. Elizabeth Smith.

LAWRIE, also called LARRIE, THOMAS, white. marr. Elizabeth Smith.

BURGESS (LAWRIE), GLADYS MARY, white, b. 1900 approx., living 1939 age 39 approx., still living 1949. f. Thomas Lawrie m. Kate West. marr. Percy Edward Burgess.

MANSELL, male, (F_2 Tas x wh) x (F_2 Tas x F_3 Tas) = ⅜ Tas, b. 1935 approx., d. same year, age under 1. f. James Maynard m. May Mansell.

MANSELL, ADEN BOYLE, also called Haydon Boyle, ((F_3 Tas x (¼ Aus x F_2 Tas) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 23 July 1935, living 1939 age 3/6, still living at Cape Barren Island 1949. (f. Clarence Mansell, jun. m. Clyda Beeton. Measured as N.1624.

MANSELL, ALEXANDER GEORGE, also called Alick, F_3 Tas, b. 13 Nov. 1883, living 1939 age 55/3, still living at Cape Barren Island 1949. f. Peter Mansell m. Rachel Maynard. marr. Sophia Emma Thomas. Measured as N.1590.

MANSELL, ALFRED JAMES, (F_2 Tas x (F_2 Tas x wh)) = ⅞ Tas. b. 20 Jan. 1922, living 1939 age 17/0, still living 1949 at Cape Barren Island, unmarried. f. Archibald Douglas Mansell m. Pauline Holt.

MANSELL, ALWYN, (F_1 Tas x ¾ Tas) = ⅞ Tas, b. 21 July 1928, living 1939 age 10/6, still living 1949. f. Claude Mansell m. Sarah Brown.

MANSELL, ARCHIBALD DOUGLAS, also called Archie Douglas, F_3 Tas, b. 15 May 1895, living 1939 age 43/8, still living at Launceston 1949. f. John Mansell m. Lydia Maynard. marr. Beryl Kathleen Everett.

MANSELL, CLARENCE ALEXANDER, also called Alick, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 1916 approx., living 1939 age 23 approx., still living 1949 in Tasmania. f. John Mansell m. Maude Brown. marr. Daisy Cornelia Thomas and Clydia Robena Beeton.

MANSELL, CLAUDE GEOFFREY, (F_2 Tas x (F_2 Tas x wh)) = ⅞ Tas, b. Dec. 1937, living 1939 age 1/1, still living 1949. f. Claude Burwood Mansell m. Sarah Rachel Brown.

MANSELL, CLAUDE BURWOOD, also called Claud Barwood, F_3 Tas, b. 20 May 1903, living 1939 age 35/8, still living Cape Barren Island 1949. f. William Mansell m. Matilda Smith. marr. Sarah Rachel Brown.

MANSELL, EDERVIN BLIGH, (F_3 Tas x (F_1 Tas x F_1 Aus)), b. 18 May 1927, living 1939 age 11/8, not later information. f. Alexander Mansell m. Sophia Thomas. Measured as N.1632.

MANSELL, also called Sydney, EDWARD, white, b. 1802, d. 25 Feb. 1876, age 74. marr. Julia Mansell, also called Black Judy, Tasmanian full blood.

MANSELL, EDWARD, also called Ted, F_2 Tas, b. 2 Feb. 1877, d. 26 June 1924, age 47/5. f. Thomas Mansell m. Nance Thomas. marr. Jane (Jessie) Holt and Mary Jane West.

MANSELL, ERNEST FREDERICK JULIAN, also called Ernest Julian Frederick, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 12 May 1918, living 1939 age 20/9, still living 1949. f. John Mansell m. Maude Brown. Measured as N.1630. After 1939 marr. Una Mansell, no children.

MANSELL, ERNEST MERVYN, (F_2 Tas x wh), b. 19 March 1899, d. 30 June 1902, age 3/3. f. James Thomas Mansell m. Florence Borland.

MANSELL, ERNEST MORGAN, F_3 Tas, b. 24 Jan. 1894, probably d. 1899, age 5 approx. f. Peter Mansell m. Rachel Maynard.

MANSELL, FREDERICK JOHN, (F_2 Tas x wh) x F_2 Tas, b. 12 July 1902, living 1939 age 36/6, still living 1949 in Launceston. f. Edward Mansell m. Jane Holt. marr. Annie Lawrie (no other information), has family.

MANSELL, GEORGE ERNEST, F_3 Tas, b. 1 Sept. 1897, living 1939 age 41/5, still living 1949 at Launceston. f. John Mansell m. Lydia Maynard.

MANSELL, HARVEY LANG, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 3 Nov. 1912, d. 10 Nov. 1912, age 7 days. f. John Mansell m. Maude Brown.

MANSELL, HORACE OLIVER, (F_2 Tas x wh), b. 9 Nov. 1894, d. 9 Feb. 1911, age 16/3. f. James Thomas Mansell m. Florence Borland.

MANSELL, IAN, F_3 Tas x (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus)), b. 1 Feb. 1935, d. Feb. 1935, age under 1 month. f. John Smith Mansell m. Frances Mary Thomas.

MANSELL, ISAAC JAMES THOMAS, (F_2 Tas x wh), b. 14 Sept. 1903, living 1939 age 35/4, still living at Cape Barren Island 1949. f. James Thomas Mansell m. Florence Borland. marr. May Brown. Measured as N.1581.

MANSELL, also called Brown, IVAN ALFORD, F_3 Tas x ((F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus)), b. 10 May 1932, living 1939 age 6/9, still living at Cape Barren Island 1949. f. John Smith Mansell m. Florence Mary Thomas.

MANSELL, JAMES, also called Jimmy, ((F_2 Tas x wh) x wh) = ⅞ Tas, b. 1925 approx., no other data. f. James Vivian Gladstone Mansell m. Gertie Swinton.

MANSELL, JAMES THOMAS, senior, F_2 Tas, b. 20 Feb. 1875, d. after 1911, age adult. f. Thomas Mansell m. Nance Thomas. marr. Florence Borland.

MANSELL, JAMES THOMAS, junior, F_3 Tas, b. 1905, d. 14 Sept. 1908, age 3. f. John Mansell m. Lydia Maynard.

MANSELL, JAMES VIVIAN GLADSTONE (F_2 Tas x wh), b. 19 April 1897, living 1939 age 41/9, still living at Hobart 1949. f. James Mansell m. Florence Borland. marr. Gertie Swinton, white.

MANSELL, JOHN NANCE, also called Jack, b. 12 April 1871. F_2 Tas, living, age 57/10, d. at Hobart before 1949. f. Thomas Mansell m. Nance Thomas marr. Lydia Maynard.

MANSELL, JOHN PETER, senior, F_3 Tas, b. 1881, living 1939 age 57, still living 1949, temporarily in Launceston. f. Peter James Mansell m. Rachel Alice Maynard. marr. Maude Adeline Brown. Measured as N.1585.

MANSELL, JOHN PETER, junior, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 1919, living 1939 age 19. f. John Mansell m. Maude Adeline Brown.

MANSELL, JOHN SMITH, F_3 Tas, b. 3 April 1900, living 1939 age 38/10, still living 1949 at Cape Barren Island. f. William Mansell m. Matilda Smith. marr. Frances Mary Thomas.

MANSELL, LAURIE LANGFORD LAWRENCE, also called Leedham, (F_3 Tas x (F_2 Tas x F_1 Aus)) x (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 21 Aug. 1931, d. 18 Aug. 1932, age 1/0. f. Lewis John Mansell m. Hilda Maynard.

MANSELL, LEONARD, also called Len, F_3 Tas, b. 22 Jan. 1895, d. 1929 approx., at Scottsdale, age 34 approx. f. William Mansell m. Matilda Smith. marr. Philippa Malvina Priscilla Thomas.

MANSELL, LEWIS JOHN, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 6 Feb. 1908, living 1939 age 31/0, still living at Cape Barren Island 1949. f. John Mansell m. Maude Brown. marr. Hilda Agathia Maynard, Rachel Beeton. Measured as N.1652.

MANSELL, LEWIS RICHARD, also called Louis, F_3 Tas, b. 24 July 1897, d. 12 April 1905, age 7/8. f. Thomas Mansell m. Clara Smith.

MANSELL, LLOYD, (¾ Tas x F_3 Tas) = ⅞ Tas, b. 8 May 1920, living 1939 age 18/9, still living 1949. f. Archibald Mansell m. Pauline Holt. Measured as N.1705. after 1939 marr. Irene Priscilla Thomas, has two boys, one girl.

MANSELL, MAXWELL JOHN, (F_3 Tas x (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus)), b. 10 Oct. 1929, living 1939 age 9/4, still living at Cape Barren Island 1949. f. John Mansell m. Frances Thomas. Measured as N.1672.

MANSELL, MORGAN, F_3 Tas, b. 1895 approx., d. at Great War 1914-1918, age 19-23 approx. f. Peter Mansell m. Rachel Maynard.

MANSELL, MORGAN ALEXANDER, (F_3 Tas x (F_1 Tas x F_1 Aus)), b. 4 Dec. 1919, living 1939 age 19/1. f. Alexander Mansell m. Sophie Thomas. Measured as N.1602.

MANSELL, PETER JAMES, F_2 Tas, b. 18 July 1858, d. 11 Nov. 1933, age 75/4. f. Thomas Mansell m. Nance Thomas. marr. Rachel Alice Maynard.

MANSELL, PETER JOHN, *see* John Peter Mansell.

MANSELL, PHILLIP JOHN, F_3 Tas, b. 11 Aug. 1894, living 1939 age 44/5, unmarried, d. 12 April 1947 at Whitemark. f. Thomas Edward Mansell m. Clara Jane Smith.

MANSELL, REUBEN CASHEL, also called Rheuben Cashel, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 2 Dec. 1913, living 1939 age 25/2, still living at Cape Barren Island, unmarried 1949. f. Henry William Brown m. Florence Maud Mansell. Measured as N.1706.

MANSELL, REX EDWARD, F_3 Tas x (F_2 Tas x ¼ Aus), b. 28 May 1938, living 1939 age 0/9, still living 1949. f. William Henry Mansell, junior m. Henrietta Brown (Johnson).

MANSELL, ROYCE LANGFORD, ((F_3 Tas x (¼ Aus x F_2 Tas)) x ((F_2 Tas x (F_1 Tas x F_1 Aus)), b. 3 July 1937, living 1939 age 1/6, still living Cape Barren island 1949. f. Clarence Mansell m. Clyda Beeton.

MANSELL, SHANNON, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 1908 approx., living 1939 age 31 approx., living 1949 in Hobart. f. John Peter Mansell m. Maude Adeline Brown.

MANSELL, SILAS MILTON, (F_2 Tas x wh) x F_2 Tas, b. 3 Oct. 1897, living 1939 age 41/4, still living 1949 at Lady Barron. f. Edward Mansell m. Jane Elizabeth Holt.

MANSELL, SYDNEY ERNEST, (F_2 Tas x wh) x F_2 Tas, b. 1 Sept. 1895, living 1939 age 43/5, still living 1949 in Launceston. f. Edward Mansell m. Jane Elizabeth Holt. marr. Violet Gorda Mansell.

MANSELL, also called Sydney, THOMAS, also called Tom, F_1 Tas, b. 1837, d. age f. Edward Mansell m. Julia Mansell also called Black Judy. marr. Nancy Thomas. still living in 1877 when birth of son Edward was recorded at Georgetown. died at Launceston General Hospital.

MANSELL, THOMAS EDWARD, senior, F_2 Tas, b. 14 Nov. 1862, d. 1895 approx., age 33 approx. f. Thomas Mansell m. Nance Thomas. marr. Clara Jane Smith.

MANSELL, THOMAS EDWARD, junior, F_3 Tas, b. 11 June 1891, d. at Great War 1914-18, age 25 approx., unmarried. f. Thomas Edward Mansell, senior m. Clara Jane Smith. photo. Man. 1920 pl. K, fig. 3.

MANSELL, TREVOR, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 1920 approx., living 1939 age 19 approx., still living 1949 in Launceston. f. George Ernest Mansell m. Maude Adeline Brown.

MANSELL, WALTER SHANNON, F_3 Tas, b. 5 March 1890, living 1939 age 48/11, unmarried, d. at Lady Barron 12 Nov. 1942. f. Peter James Mansell m. Rachel Alice Maynard. Measured as N.1621.

MANSELL, WILLIAM HENRY, senior, F_2 Tas, b. 30 Aug. 1864, living 1939 age 74/5, d. 1941 approx., at Launceston. f. Thomas Mansell m. Nance Thomas. Measured as N.1597. marr. Matilda Florence Smith.

MANSELL, WILLIAM HENRY, junior, F_3 Tas, b. 1 Sept. 1889, living, age 49/4. f. William Henry Mansell senior m. Matilda Florence Smith.

(MANSELL), female, F_3 Tas, b. 10 May, 1888, d. 10 May, 1888, age 1 hour (called a male in Death Register). f. William Henry Mansell, senior m. Matilda Florence Smith.

(MANSELL), female, F_3 Tas, b. d. in Launceston Hosiptal, as baby. f. William Henry Mansell, senior m. Matilda Florence Smith.

(MANSELL), female, F_3 Tas, b. 2 April 1890, no further information. f. Thomas Edward Mansell m. Clara Jane Smith.

(MANSELL), ADELINE ROSE, (F_3 Tas x (F_2 Tas x ¼ Aus)), b. 31 March 1932, living 1939 age 6/10, still living 1949 in Launceston, unmarried. f. George Mansell m. Maude Brown.

(MANSELL), ALICE LOUISA, F_3 Tas, b. 30 June 1885, living 1939 age 53/7, still living at Cape Barren Island 1949. f. Peter James Mansell m. Rachel Alice Maynard. Measured as N.1627.

MAYNARD (MANSELL), ALMA GLESIRE, F_3 Tas, b. 8 Dec. 1892, living 1939 age 46/2, still living at Lady Barron 1949. f. Thomas Edward Mansell m. Clara Jane Smith. marr. Ronald Thomas and Gordon Thomas Maynard. Measured as N.1619.

MAYNARD (MANSELL), AUGUSTA LAVINIA, F_3 Tas, b. 8 June 1903, living 1939 age 35/7, still living at Launceston 1949. f. John Nance Maynard m. Lydia Maynard. Measured as N.1655. marr. James Henry Paul Maynard.

(MANSELL), BEVERLEY MONICA, (F_3 Tas x (F_2 Tas x wh)), = ¾ Tas, b. 25 Aug. 1930, living 1939 age 8/5, still living 1949 in Hobart. f. Claude Burwood Mansell m. Sarah Rachel Brown.

(MANSELL), CLARA JANE *see* (MANSELL), FLORENCE CLARA.

MAYNARD (MANSELL), CLAUDIA also called Claudie, F_3 Tas, b. 16 Aug. 1888, living 1939 age 50/5, still living at Cape Barren Island 1949. f. Thomas Edward Mansell m. Clara Jane Smith. marr. Benjamin Maynard, junior, and Albert Henry Paul Maynard. Measured as N.1671.

BROWN (MANSELL), CLETA DORA, F_3 Tas, b. 28 June 1896, living 1939 age 42/7, still living at Cape Barren Island 1949. f. Peter James Mansell m. Rachel Alice Maynard. marr. Henry George Brown.

BROWN (MANSELL), EMILY BLANCHE, F Tas, b. 23 March 1901, d. 1929 approx., in Scottsdale, age 28 approx. f. John Nance Mansell m. Lydia Maynard. marr. Richard William Brown.

(MANSELL), ESMA JEAN, b. 4 May 1928, living 1939 age 10/9. guardian in 1942 was Henrietta Johnson (Brown).

(MANSELL), EVELYN, (F_3 Tas x (F_2 Tas x wh)) = ¾ Tas, b. 1921 approx., believed to be dead 1939. f. Archibald Douglas Mansell m. Pauline Holt.

(MANSELL), FLORENCE (((F_2 Tas x wh) x wh) = ¼ Tas, b. period 1925-30, no other information. f. James Vivian Mansell m. Gertie Swinton.

MAYNARD (MANSELL), FLORENCE CLARA, also called Clara Jane in Georgetown Register, F_3 Tas, b. 23 Aug. 1885, living 1939 age 53/5, still living at Cape Barren Island 1949. f. Thomas Edward Mansell m. Clara Jane Smith. Measured as N.1628. marr. George Everett Maynard.

BROWN (MANSELL), FLORENCE MAUD, F Tas, b. 31 July 1891, d. 1937, age 46. f. William Henry Mansell m. Matilda Florence Smith. marr. Henry William Brown.

BROWN (MANSELL), FRANCES AMELIA, also called Fanny, F_3 Tas, b. 30 July 1880, living 1939 age 58/6, d. at Cape Barren Island, March 1944. f. Peter James Mansell m. Rachel Alice Maynard. marr. Clarence William Brown.

(MANSELL), FREDA DORA, ((F_3 Tas x ($\frac{1}{4}$ Aus x F_2 Tas)) x ((F_2 Tas x (F_1 Tas x F_1 Aus)), b. 2 June 1934, living 1939 age 4/6. f. Clarence Mansell m. Clyda Beeton. Measured as N.1623.

(WOODS) or MANSELL, FURLIE DOREEN, ((F_2 Tas x (F_1 Tas x F_1 Aus)) x wh), b. 2 Jan. 1929, living 1939 age 11/0, still living 1949 in Launceston. f. Alfred Woods m. Clyda Robena Beeton. Measured as N.1697.

MAYNARD (MANSELL), GLADYS, F_3 Tas, b. 10 Sept. 1907, living 1939 age 31/4, still living at Cape Barren Island 1949. f. William Mansell m. Matilda Smith. marr. Bernard Richard Maynard and Richard William Davey Maynard. since 1939 has had an additional son. Measured as N.1704.

(MANSELL), GWENDOLYNE MATILDA, (F_3 Tas x $\frac{1}{4}$ Aus), b. 17 Sept. 1926, d. 16 Dec. 1927, age 1/3. f. Claude Burwood Mansell m. Sarah Brown.

(MANSELL), HELEN, ((F_2 Tas x wh) x wh) = $\frac{3}{4}$ Tas, b. period 1925-30, no other information. f. James Vivian Mansell m. Gertie Swinton.

(MANSELL), HILDA AMELIA, ((F_3 Tas) x ((F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus))), b. 22 April 1938 approx., living 1939 age 9 months, still living at Cape Barren Island 1949. f. John Smith Mansell m. Frances Mary Thomas.

MAYNARD (MANSELL), IDA LAVINIA, F_3 Tas, b. 12 Dec. 1883, living 1939 age 55/2, still living at Cape Barren Island 1949. f. Thomas Mansell m. Clara Smith. marr. James Armstrong Maynard.

SMITH (MANSELL), ISABELLA, F_2 Tas, b. 14 March 1866, d. 1912 approx., age 46 approx. f. Thomas Mansell m. Nance Thomas. marr. Tasman Smith.

(MANSELL), JOYCE LOUISE, F_3 Tas, b. 31 March 1910, living 1939 age 28/10, still living in Melbourne 1949. f. William Henry Mansell, senior m. Matilda Florence Smith. marr. Purdon. has one boy, one girl.

(MANSELL), JOYCE, (F_3 Tas x (F_2 Tas x wh)) = $\frac{3}{4}$ Tas, b. 24 Sept. 1921, living 1939 age 17/4. f. John Brown m. Florence Mansell.

(MANSELL), JULIA, JUDY, also called Black Judy, Tasmanian full blood. d. at Sea Lion Island (Seal Island) July 1867, age given as 60, wife of white, Sydney, also called Mansell.

BURGESS (MANSELL), JULIA ANN, F_2 Tas, b. 18 Dec. 1860, d. 1900 approx., age 40 approx. f. Thomas Mansell m. Nance Thomas. marr. George William Burgess.

SAINTIE also BROWN (MANSELL), KATHLEEN, F_3 Tas x (F_2 Tas x $\frac{1}{4}$ Aus), b. 24 Feb. 1916, d. 1938, age 22. f. Henry George Brown m. Florence Maud Mansell. marr. Morris Saintie and Benjamin William Brown.

(MANSELL), LAVINIA, F_2 Tas, b. 1 Sept. 1868, probably died as child. f. Thomas Mansell m. Nance Thomas.

BROWN (MANSELL), LILY MAY, F_3 Tas, b. 5 June 1896, d. 30 May 1926, age 30/0. f. John Mansell m. Lydia Maynard. marr. Henry William Brown. one child by John Mansell.

(MANSELL), LIVINIA PAULINE, F_2 Tas x (F_2 Tas x wh), b. 13 Sept. 1899, d. 1899-1900 age under 1 year. f. Edward Mansell m. Jane Holt.

(MANSELL), MADGE VICTORIA, F_3 Tas, b. 30 June 1896, living 1939 age 42/7, still living at Cape Barren Island 1949. f. William Henry Mansell m. Matilda Florence Smith.

(MANSELL), MARGARET JANETTE, also called JEANNETTE, ((F_2 Tas x (F_1 Aus x F_1 Tas)) x ((F_3 Tas x ($\frac{1}{4}$ Aus x F_2 Tas)), b. 3 Oct. 1931, living 1939 age 7/4, still living at Cape Barren Island 1949. f. Clarence Alexander Mansell m. Daisy Cornelia Thomas. Measured as N.1710. marr. after 1939 Frederick Beeton.

(MANSELL), MARJORIE AMELIA, ((F_3 Tas) x (F_1 Tas x F_1 Aus)) x ((F_3 Tas x ($\frac{1}{4}$ Aus x F_2 Tas)), b. 29 July 1927, living 1939 age 11/6, still living unmarried, at Cape Barren Island 1949. f. Clarence Alexander Mansell m. Daisy Cornelia Thomas. Measured as N.1708.

(MANSELL), MARY FRANCES, F_3 Tas, b. 26 Dec. 1891, d. between 1911 and 1921, age young adult. f. John Mansell m. Lydia Maynard.

MANSELL (MANSELL), MAY, (F_2 Tas x F_3 Tas), b. 6 May 1915, living 1939 age 23/8, still living in Hobart 1949. f. John Mansell, F_2 Tas m. Lily May Mansell. marr. Isaac James Thomas Mansell. Measured as N.1637.

MAYNARD (MANSELL), NELLIE LOUISE, F_1 Tas, b. 1896 approx., living 1939 age 43 approx., still living in Launceston 1949. f. Thomas Mansell m. Clara Smith. marr. John Phillip Maynard.

(MANSELL), NITA, ((F_2 Tas x wh) x wh) = ¾ Tas, b. period 1920-30, no further information. f. James Vivian Mansell m. Gertie Swinton.

(MANSELL), RAYNON, (F_2 Tas) x (F_2 Tas x ¾ Aus)), b. 1933 approx., d. 1933-4, age under 1 year. f. George Mansell m. Maude Brown.

(MANSELL), RITA BURWOOD, (F_3 Tas x (F_2 Tas x wh)) = ¾ Tas, b. 18 July 1934, living 1939 age 4/6, still living 1949 at Cape Barren Island. f. Claude Burwood Mansell m. Sarah Rachel Brown.

BEETON (MANSELL), ROSE ADELA, also called Rose Adelle, F_1 Tas, b. 5 April 1893, living 1939 age 45/10, still living at Cape Barren Island 1949. f. John Nance Mansell m. Lydia Maynard. marr. Walter Victor Beeton.

(MANSELL), SHIRLEY OLIVE, F_3 Tas x (F_2 Tas x ¾ Aus), b. 20 Dec. 1935, living 1939 age 3/1, still living 1949. f. William Henry Mansell, junior m. Henrietta Brown (Johnson).

(MANSELL), VERA, also called Veraline, (F_2 Tas x wh), b. May 1902, d. 11 Dec. 1902, age 7 months. f. James Thomas Mansell m. Florence Borland.

MANSELL (MANSELL), VIOLET GORDA, also called Gordest, F_2 Tas, b. 30 Sept. 1900, living 1939 age 38/4, still living 1949. f. John Mansell m. Lydia Maynard. marr. Sydney Ernest Mansell.

SUMMERS (MANSELL), WINIFRED JANE, also called Wynnie, F_2 Tas, b. 2 April 1889, living 1939 age 49/10, still living at Cape Barren Island 1949. f. Thomas Mansell m. Clara Smith. marr. Edward Summers. Measured as N.1690.

MANSELL, ZELLA ELIZABETH, *see* MAYNARD, ZELLA ELIZABETH.

MAYNARD, male, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 1934-5, d. age 2 days. f. James Henry Paul Maynard m. Augusta Lavinia Mansell.

MAYNARD, male ¼ Aus, b. 21 Feb. 1877, d. 1 March 1877, age 8 days. f. Dave Maynard, senior m. Alicia Stafford.

MAYNARD, male ¾ Aus, b. living 1939 age unknown. f. David Maynard m. Shean.

MAYNARD, ALBERT HENRY PAUL, (F_2 Tas x F_1 Aus), b. 17 Jan. 1894, d. 11 Feb. 1938, age 44/1. f. Benjamin Maynard, senior m. Laura Frances Everett. marr. Claudia Mansell.

MAYNARD, ALEXANDER, senior, also called Aleck, F_1 Aus, b. 1852, d. about 1870, age young adult. f. Henry Maynard (Todd) m. Elizabeth.

MAYNARD, ALEXANDER, junior, also called Aleck, F_2 Tas, b. 1863, d. 22 July 1926, age 63. f. John Maynard m. Fanny Everett.

MAYNARD, ALFRED ERNEST, also called Alfred Charles, ¾ Tas, b. 25 Aug. 1876, d. 2 Nov. 1880, age 4/2. f. John Maynard m. Eva Stafford.

MAYNARD, ANDREW ARMSTRONG, (F_2 Tas x ¾ Aus), b. 9 Jan. 1883, living 1939 age 56/0, still living at Cape Barren Island 1949, unmarried. f. James Richard Maynard m. Mary Armstrong. Measured as N.1669.

MAYNARD, BADEN EDWARD, also called Baden Edwin, F_2 Tas x (F_2 Tas x F_1 Aus), b. 8 July 1924, living 1939 age 14/7, still living 1949 in Launceston. f. James Henry Paul Maynard m. Augusta Lavinia Mansell. Measured as No. 1653. since 1939 has marr. Betty Brown.

MAYNARD, BASS AUBREY, (¾ Tas x F Tas) = 7/16 Tas, b. 29 Feb. 1928, living 1939 age 10/11, still living at Cape Barren Island 1949. f. George Arnold Maynard m. Sarah Smith. Measured as N.1674.

MAYNARD, BENJAMIN, senior, F_1 Aus, b. 1855, d. 14 July 1924, age 69. f. Henry Maynard (Todd) m. Elizabeth. marr. Laura Frances Everett.

MAYNARD, BENJAMIN, junior, also called Edward Stanley, (F_2 Tas x F_1 Aus), b. 12 Sept. 1891, d. 1917 approx., age 26 approx. f. Benjamin Maynard, sen. m. Laura Everett. marr. Claudia Mansell.

MAYNARD, BERNARD RICHARD, (F_2 Tas x ¾ Aus), b. 1913, living 1939 age 25, still living 1949 at Cape Barren Island. f. James Armstrong Maynard m. Ida Mansell. marr. after 1939 Vilma Eliza Thomas. has three children.

MAYNARD, CECIL WALTER LEON, white, b. 24 Aug. 1897, living 1939, age 41/5. f. unknown, white m. Florence Isabel Williams.

MAYNARD, CLAUDE ISAAC RICHARD, also called Richard, Dick, (F_2 Tas x F_1 Aus), b. 27 May 1897, d. 30 July 1926, age 29/2. f. Benjamin Maynard, sen. m. Laura Frances Everett. marr. Elizabeth Smith.

MAYNARD, DAVID, senior, also called Dave, F_1 Aus, b. 1850, d. 1 June 1905, age 55. f. Henry Maynard m. Elizabeth Holt. marr. Alicia Emma Stafford (Cohen).

MAYNARD, DAVID, junior, also called Dave, ¼ Aus, b. 1886 approx., living 1939 age 53 approx., still living 1949 in Launceston. f. Dave Maynard, senior m. Alicia Emma Stafford (Cohen). marr. Sheard or Shean, white.

MAYNARD, EDGAR LEOPOLD, (F_2 Tas x ¼ Tas), b. 15 April 1888, living 1939 age 49/9, still living, temporarily in Gippsland, 1949. f. John Maynard, jun. m. Amanda Thomas. marr. Marie Isabel Brown. Photo. Man, 1920 pl. K, fig. 5.

MAYNARD, EDMUND, (F_2 Tas x (F_2 Tas x F_1 Aus), b. 13 Oct. 1919, d. 20 Oct. 1919, age 7 days. f. Claude Isaac Richard Maynard m. Elizabeth Smith.

MAYNARD, EDMUND JAMES, (F_2 Tas x (F_1 Tas x (F_1 Aus)) x (F_2 Tas x ¼ Aus), b. 31 July 1920, living 1939 age 18/6, still living at Cape Barren Island 1949. f. Stanley Maynard m. Eliza Beeton. Measured as N.1659.

MAYNARD, EDMUND LOUIS, ¼ Aus, b. 3 Oct. 1886, d. 1916 approx., in World War 1, on Gallipoli, age 30. f. David Maynard, sen. m. Alicia Emma Stafford (Cohen).

MAYNARD, EDWARD STAFFORD, ¼ Aus, b. 25 Oct. 1885, no other data. f. David Maynard, sen. m. Alicia Emma Stafford (Cohen).

MAYNARD, EDWIN, (F_2 Tas x F_1 Aus), b. 18 Feb. 1878, d. 25 Feb. 1878, age 7 days. f. Benjamin Maynard, sen. m. Laura Frances Everett.

MAYNARD, ELLIS THOMAS, (F_2 Tas x ¼ Aus), b. 24 Feb. 1929, living 1939 age 9/11, still living 1949 at Lady Barron. f. Gordon Thomas Maynard m. Alma Glesire Mansell. Measured as N.1673.

MAYNARD, ERIC, (F_2 Tas x ¼ Aus), b. Jan. 1912, d. 12 Oct. 1930, age 18/10. f. John Maynard, junior m. Amanda Jane Thomas.

MAYNARD, ERIC RICHARD, (F_1 Tas x (F_2 Tas x F_1 Aus)), b. 25 Aug. 1925, living 1939 age 13/5, still living 1949, unmarried. f. Claude Isaac Richard Maynard m. Elizabeth Smith.

MAYNARD, FRANK, ¼ Tas, b. 1881 approx., d. at World War 1 in action on Gallipoli in 1916 approx, age 35 approx. f. John Maynard, senior m. Eva Stafford (Cohen).

MAYNARD, FRANK WILLIAM, (F_2 Tas x ⅜ Tas) = 7/16 Tas, b. 12 Nov. 1921, living 1939 age 17/2, still living 1949, on S.S. Loatta, ship trading to Cape Barren Island. f. George Arnold Maynard m. Sarah Jane Smith. Measured as N.1601.

MAYNARD, GEORGE, F_2 Tas, b. 1866, d. 1896, age 30. f. John Maynard m. Fanny Everett. marr. Lillie Brown.

MAYNARD, GEORGE ARNOLD, (F_2 Tas x ¼ Tas), b. 14 Nov. 1897, living 1939 age 41/2, still living at Lady Barron 1949. f. John Maynard m. Amanda Thomas. marr. Sarah Jane Smith. after 1939 marr. Phyllis Amada Thomas. Measured as N.1591.

MAYNARD, GEORGE EVERETT, (F_2 Tas x F_1 Aus), b. 6 Aug. 1883, living 1939 age 55/5, still living at Cape Barren Island 1949. f. Benjamin Maynard, senior m. Laura Frances Everett. marr. Florence Clara Mansell. Measured as N.1592.

MAYNARD, GORDON THOMAS, ¼ Aus, b. 1 Nov. 1904, living 1939 age 34/2, still living 1949. f. Richard Maynard m. Florence Williams. after 1939 marr. Vida Robena Thomas (Everett). Measured as N.1612.

MAYNARD, (previously known as Todd), HENRY, also called Richard, white, b. 1795 approx., d. 13 Aug. 1874, age 79 approx. carpenter and boat builder, from England; there known as Henry Todd and Bushby; in Georgetown Death Register is named Richard Maynard. marr. Tasmanian full blood (of Ben Lomond Tribe) who died between 1840 and 1843. then marr. Elizabeth, Australian full blood.

MAYNARD, HENRY, senior, also called Lagger, F_1 Aus, b. 1844, d. 4 Oct. 1920, age 76. f. Henry Maynard (Todd) m. Elizabeth. marr. Emma Bligh.

MAYNARD, HENRY, junior, F_2 Aus, b. 1866 approx., d. after 1891, age adult. f. Henry (Lagger) Maynard, senior m. Emma Bligh.

MAYNARD, HERBERT GILBERT, (F_2 Tas x F_1 Aus), b. 19 April 1904, d. 26 April 1904, age 7 days. f. Benjamin Maynard, senior m. Laura Frances Everett.

MAYNARD, HUBERT GLADSTONE, complex trihybrid, 5th generation, b. 10 Jan. 1935, d. 12 Jan. 1935, age 2 days. f. Hubert James Maynard m. Violet Maynard.

MAYNARD, HUBERT JAMES, (F_1 Aus x F_2 Tas) x F_3 Tas, b. 24 July 1914, living 1939 age 24/6, still living 1949 temporarily in Launceston. f. George Maynard m. Florence Mansell. marr. Violet Maynard. Measured as N.1605. after 1939 marr. Mona Lily Brown.

MAYNARD, IRWIN, (F_1 Aus x F_2 Tas) x F_3 Tas), b. 7 June 1908, living 1939 age 30/7, still living 1949 at Cape Barren Island. f. George Maynard m. Florence Mansell. marr. Phoebe Maynard. Measured as N.1583.

MAYNARD, JACK VALE, also called Vale Jack Alexander, (F_2 Tas x F_1 Aus), b. 8 Sept. 1902, living 1939 age 36/4, still living near Hobart 1949. f. James Maynard m. Ada Mary Everett. marr. to white.

MAYNARD, JAMES, senior, F_1 Aus, b. 1859, d. 11 Aug. 1930, age 71. f. Henry Maynard m. Elizabeth.

MAYNARD, JAMES, junior, (F_2 Tas x $\frac{1}{2}$ Aus), b. d. age 2 months. f. James Maynard m. Ida Mansell.

MAYNARD, JAMES ARMSTRONG, $\frac{1}{2}$ Aus, b. 1881, living 1939 age 57, d. just prior to Jan. 1949 in Launceston. f. unknown, white m. Mary Armstrong. Measured as N.1593.

MAYNARD, JAMES, also called Benjamin, (F_2 Tas x F_1 Aus), b. 1882, d. 2 Feb. 1889, age 7. f. Benjamin Maynard, senior m. Laura Frances Everett. not same person as Benjamin Maynard, junior.

MAYNARD, JAMES DOUGLAS, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 19 Jan. 1929, living 1939 age 10/0, still living 1949 in Queensland. f. James Henry Paul Maynard m. Augusta Lavinia Mansell. Measured as N.1647.

MAYNARD, JAMES HENRY PAUL, (F_2 Tas x F_1 Aus), b. 2 Nov. 1895, living 1939 age 43/3. f. James Maynard m. Ada Everett. marr. Augusta Lavinia Mansell. Measured as N.1594.

MAYNARD, JAMES RICHARD, F_2 Tas, b. 1856 approx., d. 1895 approx., age 39 approx. f. John Maynard m. Fanny Everett. marr. Mary Armstrong.

MAYNARD, JOHN, senior, also called Jack, F_1 Tas, b. 1833, still living in 1908. f. Henry Maynard m. Tasmanian woman. marr. Fanny Everett and Eva Stafford.

MAYNARD, JOHN, junior, F_2 Tas, b. 1860, d. 1916 approx., age 56 approx. f. John Maynard, senior m. Fanny Everett. marr. Amanda Jane Thomas.

MAYNARD, JOHN PHILLIP, $\frac{3}{4}$ Tas, b. 20 Jan. 1892, living 1939 age 47/0, still living in Launceston 1949. f. John Maynard, junior m. Amanda Jane Thomas. marr. Nellie Louise Mansell.

MAYNARD, JOSEPH, also called Joe, F_2 Aus, b. 1853, d. 27 Dec. 1914, age 61. f. Henry Maynard (Todd) m. Elizabeth. marr. Harriet Jane Beeton. no children.

MAYNARD, LAWRENCE, (F_2 Tas x $\frac{1}{2}$ Tas) x F_3 Tas) = 7/16 Tas, shows exceptional degree of segregation of Tasmanoid characters, b. 26 Nov. 1923, living 1939 age 15/2 still living at Lady Barron 1949, unmarried. f. George Arnold Maynard m. Sarah Jane Smith. Measured as N.1693.

MAYNARD, LEEDHAM EDWARD, (F_3 Tas x F_2 Tas x F_1 Aus), b. 22 Feb. 1922, living 1939 age 16/11, served in World War II, still living 1949 in Tasmania, unmarried. f. Albert Henry Paul Maynard m. Claudia Mansell. Measured as N.1617.

MAYNARD, LEEDHAM REYNOLDS, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 18 May 1917, d. 3 Feb. 1920, age 2/8. f. Claude Isaac Richard Maynard m. Elizabeth Smith.

MAYNARD, LEONARD, (F_2 Tas x $\frac{1}{2}$ Aus), b. 3 July 1932, living 1939 age 6/6, still living 1949 at Cape Barren Island. f. Bernard Richard Maynard m. Gladys Mansell.

MAYNARD, MITCHELL TERENCE, ($\frac{3}{4}$ Tas x ((F_1 Aus x F_2 Tas) x (F_3 Tas)), b. 8 March 1930, living 1939 age 8/10, d. 17 Dec. 1946. f. Irwin Maynard m. Phoebe Maynard.

MAYNARD, NEIL WILLIS, F_3 Tas x (F_2 Tas x F_1 Aus), b. 7 Aug. 1931, living 1939 age 7/6, d. 29 Dec. 1945. f. James Henry Paul Maynard m. Augusta Lavinia Mansell. Measured as N.1667.

MAYNARD, NELSON ERNEST, (F_2 Tas x F_3 Tas), b. Nov. 1917, living 1939 age 21/2, d. after 1939. f. (John Mansell) m. Augusta Lavinia Mansell. Measured as N.1598.

MAYNARD, NOEL HENRY, F_3 Tas x (F_2 Tas x F_1 Aus), b. 18 June. 1933, living 1939 age 5/7, still living in Launceston 1949, unmarried. f. James Henry Paul Maynard m. Augusta Lavinia Mansell.

MAYNARD, OSWALD, ((F_2 Tas x wh) x (F_2 Tas x ¼ Tas)) = ¼ Tas x $\frac{3}{8}$ Tas, b. 1914 approx., living 1939 age 25 approx., still living 1949 in Gippsland, unmarried. f. Edgar Leopold Maynard m. Marie Isabel Brown.

MAYNARD, PERCY CLARE ARMSTRONG, (F_2 Tas x ¼ Aus), b. 1885, d. 17 June 1902, age 17. f. James Richard Maynard m. Mary Armstrong.

MAYNARD, PERCY JAMES, (F_2 Tas x ¼ Tas) = $\frac{3}{8}$ Tas, b. 26 June 1908, living 1939 age 30/7, still living at Cape Barren Island 1949. f. John Maynard, junior m. Amanda Jane Thomas. Measured as N.1613.

MAYNARD, PHILLIP, (F_2 Tas x (F_2 Tas x ¼ Tas)) = 7/16 Tas, b. 14 July 1922, living 1939 age 16/6, still living 1949 in Launceston, unmarried. f. John Phillip Maynard m. Nellie Louise Mansell.

MAYNARD, RALPH, (F_3 Tas x (F_2 Tas x ¼ Tas)) = 7/16 Tas, b. 17 Feb. 1930, living 1939 age 8/11, still living 1949 at Lady Barron. f. George Arnold Maynard m. Sarah Jane Smith. Measured as N.1712.

MAYNARD, RAYMOND, (F_3 Tas x (F_2 Tas x ¼ Tas)) = 7/16 Tas, b. Nov. 1925, living 1939 age 13/3, still living 1949. f. George Arnold Maynard m. Sarah Jane Smith. Measured as N.1633.

MAYNARD, REYNOLD STANLEY, (F_3 Tas x (F_2 Tas x F_1 Aus), b. 25 Jan. 1923, d. 29 July 1924, age 1/6. f. Claude Isaac Richard Maynard m. Elizabeth Smith.

MAYNARD, RICHARD, F_1 Aus, b. 1862, d. 12 Dec. 1904, age 42. f. Henry Maynard (Todd) m. Elizabeth. marr. Florence Isabel Williams.

MAYNARD, RICHARD WILLIAM DARCY, ¼ Aus, b. 16 Nov. 1902, living 1939 age 37/2, still living 1949. f. Richard Maynard m. Florence Isabel Williams. marr. Gladys Mansell. Measured as N.1699. after 1939 had an additional son.

MAYNARD, RITCHIE WILLIAM, ($\frac{3}{4}$ Tas x ((F_1 Aus x F_2 Tas) x (F_3 Tas)), b. 29 Nov. 1931, living 1939 age 7/2, still living 1949. f. Irwin Maynard m. Phoebe Maynard. Measured as N.1676.

MAYNARD, ROYAL GRANT, (F_2 Tas x ¼ Aus) x ((F_2 Tas) x (F_1 Tas x F_1 Aus)), b. 31 Jan. 1930, living 1939 age 9/0, still living 1949. f. Stanley Morton Maynard m. Eliza Florence Beeton. Measured as N.1711. guardian is James Beeton.

MAYNARD, ROYAL LEONARD, ¼ Aus, b. 27 Dec. 1889, no other data. f. David Maynard, senior m. Alicia Emma Stafford (Cohen).

MAYNARD, SHANNON, (F_2 Tas x ¼ Tas), b. 20 Jan. 1896, d. before 6 Feb. 1896, age under 17 days. f. John Maynard, junior m. Amanda Jane Thomas.

MAYNARD, STANLEY JAMES, (F_2 Tas x ¼ Aus), b. 29 May 1909, d. 22 Aug. 1909, age 3 months. f. James Armstrong Maynard m. Ida Mansell.

MAYNARD, STANLEY MORTON, also called Morton Stanley, (F_2 Tas x ¼ Aus), b. 19 May 1888, d. 1935 approx., of snake bite at Whitemark, age 47 approx. f. James Richard Maynard m. Mary Armstrong. marr. Eliza Florence Beeton.

MAYNARD, TASMAN BENJAMIN BARRON, also called Ben, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 8 Feb. 1920, living 1939 age 19/0, still living at Lady Barron 1949. f. Claude Isaac Richard Maynard m. Elizabeth Smith. after 1939 marr. Stella Mansell. has 3 children.

MAYNARD, TREVOR, (F_3 Tas x ¼ Aus), b. 28 Feb. 1928, living 1939 age 10/10, still living at Lady Barron 1949. f. Gordon Thomas Maynard m. Alma Glesire Mansell.

MAYNARD, ULVERSTONE, F_3 Tas x (F_2 Tas x F_1 Aus), b. 29 March 1930, d. 7 Aug. 1930, age 4 months. f. James Henry Paul Maynard m. Augusta Lavinia Mansell.

MAYNARD, VICTOR LEO, ¼ Aus, b. 18 April 1893 living 1939 age 45/9, still living on Flinders Island 1949, unmarried. f. David Maynard, senior m. Alicia Emma Stafford (Cohen).

MAYNARD, VINCENT PAUL, F_3 Tas x (F_2 Tas x F_1 Aus), b. 1 Dec. 1922, living 1939 age 16/2, still living at Cape Barren Island 1949. f. James Henry Paul Maynard m. Augusta Lavinia Mansell. Measured as N.1596. after 1939 marr. Mary Alice Isabel Beeton. has two daughters.

MAYNARD, VIVIAN, ½ Aus, b. 10 Dec. 1888, d. 18 Dec. 1888, age 8 days. f. David Maynard m. Alicia Emma Stafford (Cohen).

MAYNARD, VIVIAN TASMAN, (F_3 Tas x ⅜ Tas) = 7/16 Tas, b. 13 May 1919, living 1939 age 19/9, killed at World War II, 1939-1945. f. George Arnold Maynard m. Sarah Jane Smith. Measured as N.1603.

MAYNARD, WALTER ALBERT EUGENE, ¼ Aus, b. 20 Nov. 1897, living 1939 age 41/2, still living 1949. f. David Maynard m. Alicia Emma Stafford (Cohen). marr. , white.

MAYNARD, WILLIAM EDWARD, ¼ Tas, b. 15 Dec. 1882, d. 1917 at World War I in action on the Somme, age 35. f. John Maynard, senior m. Eva Stafford (Cohen).

(MAYNARD), female, (F_2 Tas x ¼ Aus), b. 9 July 1889, d. 9 July 1889, age 9 hours. f. George Maynard m. Lillie Brown.

MAYNARD (SHEARD or SHEAN), female, white. marr. David Maynard, junior.

(MAYNARD), female, also called Margaret, Tasmanian full blood, b. d. between 1840 and 1843. marr. Henry Maynard (Todd).

(MAYNARD), female, (F_2 Tas x ¼ Aus), b. 2 May 1879, d. 2 May 1879, age few minutes. f. James Richard Maynard m. Mary Armstrong.

(MAYNARD), also called Mansell, AILEEN ALETTA, ((F_3 Tas x ¼ Aus) x (F_3 Tas), b. 4 Feb. 1931, living 1939 age 8/0, still living in Launceston 1949. f. Bernard Maynard m. Gladys Mansell. Measured as N.1702. Guardian is Darcy Maynard.

(MAYNARD), ALBINIA CORDELIA, ((F_2 Tas x F_1 Aus) x F_3 Tas), b. 3 Nov. 1920, d. 27 May 1921, age 7 months. f. George Maynard m. Florence Mansell.

(MAYNARD), ALICE, white. marr. William Maynard F_1 Aus., had no family.

(MAYNARD), AMELIA ISOBEL, (F_2 Tas x ¼ Tas), b. 1905, d. 5 Aug. 1929, age 24. f. John Maynard m. Amanda Thomas.

THOMAS (MAYNARD), ANNIE ADELA, (F_2 Tas x F_1 Aus), b. 1877, living 1939 age 52, d. at Cape Barren Island 11 July 1945. f. Benjamin Maynard, senior m. Laura Frances Everett. marr. John Thomas (F_1 Tas x F_1 Aus). Measured as N.1626.

(MAYNARD), ATHALIE LIVINIA, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 18 Nov. 1919, living 1939 age 19/2, still living at Cape Barren Island 1949. f. Albert Henry Paul Maynard m. Claudia Mansell. after 1939 marr. Harvey Garfield Brown. has two boys and two girls.

(MAYNARD), ATHENA LAVINIA, also called Athenia Lavinia, (F_2 Tas x ¼ Aus), b. 4 June 1931, living 1939 age 7/8. f. Gordon Maynard m. Alma Mansell. Measured as N.1620.

EVERETT (MAYNARD), BEATRICE EVELYN, (F_2 Tas x ¼ Tas) = ⅜ Tas, b. 6 Sept. 1899, living 1939 age 39/4, still living at Cape Barren Island 1949. f. John Maynard m. Amanda Thomas. marr. Julian Clifford Everett. Measured as N.1606.

(MAYNARD), BERTHA CHAPPEL, ¼ Tas, b. 15 Feb. 1878, d. 1900 approx., age 22 approx. f. John Maynard, senior m. Eva Stafford.

(MAYNARD), BEULAH IRENE, ⅜ Tas x ((F_1 Aus x F_2 Tas) x F_3 Tas), b. 16 Aug. 1935, living 1939 age 3/5, still living in Hobart 1949. f. Irwin Maynard m. Phoebe Maynard. Measured as N.1680.

(MAYNARD), CLYDA ERNESTINE, ((F_2 Tas x (F_1 Tas x F_1 Aus)) x (F_2 Tas x ¼ Aus), b. 9 Dec. 1927, living 1939 age 11/1, still living at Cape Barren Island 1949. f. Stanley Morton Maynard m. Eliza Florence Beeton. Measured as N.1695. after 1939 marr. Stanley Summers. has one child.

(MAYNARD), DAPHNE MATILDA, also called Daphnie Matilda, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 21 May 1924, d. 31 July 1924, age 2 months. f. Albert Henry Paul Maynard m. Claudia Mansell.

(MAYNARD), DAPHNE PEARL, also called Daphnie Pearl, (F_2 Tas x (F_1 Tas x F_1 Aus) x (F_2 Tas x ¼ Aus), b. 26 Sept. 1922, d. 24 Aug. 1934, age 11/11. f. Stanley Morton Maynard m. Eliza Florence Beeton.

(MAYNARD), EDNA MARY, (F_3 Tas x ¾ Aus), b. 27 May 1919, living 1939 age 19/8, d. 14 June 1942. f. James Armstrong Maynard m. Ida Mansell. Measured as N.1609. after 1939 marr. Reginald David Burgess. only child died.

(MAYNARD), EILEEN, also called Eileen Gordest, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 30 March 1921, living 1939 age 17/10, still living 1949 in Launceston or Melbourne, unmarried. f. James Henry Paul Maynard m. Augusta Lavinia Mansell.

(MAYNARD), ELIZABETH, also called GRANNY, Australian full blood, described as a "New Hollander", b. 1811, d. 14 Jan. 1882, age 71. marr. Henry Maynard (Todd), white.

THOMAS (MAYNARD), ELIZABETH ROSETTA, also called Jinny or Jane, ¼ Aus, b. 2 March 1899, living 1939 age 39/11, still living 1949. f. Richard Maynard m. Florence Williams. Measured as N.1645. marr. Samuel Henry Thomas.

BURGESS (MAYNARD), EMILY ALICE EVERETT, (F_2 Tas x F_1 Aus), b. 31 July 1899, d. 12 Nov. 1928, age 29/3. f. Benjamin Maynard m. Laura Frances Everett. Photo. Man 1920 Plate K, fig. 6.

EVERETT (MAYNARD), ENA GWENDOLINE, (⅞ Tas x ⅛ Tas), b. 6 Sept. 1916, living 1939 age 22/4, still living 1949. f. Edgar Maynard m. Maria Brown. marr. Keith Everett. since 1939 has had two boys and one girl.

(MAYNARD), EVA JANE, ¼ Tas, b. 2 Feb. 1887, living 1939 age 52/0, still living 1949. f. John Maynard m. Eva Stafford (Cohen).

(MAYNARD), FAITH CAROLINE, also called Faith Haroline, Arroline, Eveline, ⅜ Tas x ((F_1 Aus x F_2 Tas) x F_3 Tas), b. 18 Dec. 1933, living 1939 age 5/1, still living 1949. f. Irwin Maynard m. Phoebe Maynard. Measured as N.1679.

(MAYNARD), FLORENCE ISABEL, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 28 Jan. 1922, living 1939 age 17/0, still living 1949 at Cape Barren Island. f. George Maynard m. Florence Mansell. Measured as N.1658. now has one male child.

(MAYNARD), FLORENCE MAUD, (F_2 Tas x F_1 Aus), b. 11 April 1879, probably died as infant. f. Benjamin Maynard, senior m. Laura Frances Everett.

BROWN (MAYNARD), FRANCES LYDIA, also called Fanny, F_2 Tas, b. 22 Nov. 1868, d. 1911 approx., age 43 approx., twin of Lydia Francis Maynard. f. John Maynard, senior m. Fanny Everett. marr. William Richard Brown.

BROWN (MAYNARD), GRACE MADELINE, ¼ Aus, b. 1875 approx., living 1939 age 54 approx. f. David Maynard, senior m. Alicia Stafford (Cohen). marr. Edwin Ernest Brown.

(MAYNARD), HAZEL, (F_3 Tas x (F_2 Tas x ¼ Tas)), b. 14 Jan. 1916, living 1939 age 23/0, d. after 1939. f. John Phillip Maynard m. Nellie Louise Mansell.

(MAYNARD), HENRIETTA VICTORIA JOSEPHINE, ¼ Aus, b. 10 Oct. 1896, living 1939 age 43/4. went to England prior to 1939, still living there in 1949. f. David Maynard, senior m. Alicia Stafford (Cohen).

MANSELL (MAYNARD), HILDA AGATHA, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 27 Sept. 1911, d. 5 Nov. 1931, age 20/1. f. Benjamin Maynard, junior m. Claudia Mansell. marr. Lewis John Mansell.

HOLT (MAYNARD), ISABEL, ¼ Aus, b. 1898-1900 approx., living 1939 age 39-40 approx., still living 1949. f. David Maynard, senior m. Alicia Stafford (Cohen). marr. Frederick Holt.

SMITH (MAYNARD), JANE, also called Janice, F_1 Tas, b. 1831, d. 9 March 1886, age 55. f. Henry Maynard (Todd) m. Tasmanian full blood. marr. John Smith, senior.

(MAYNARD), JOY LAVINIA, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 16 July 1936, living 1939 age 2/6, still living in Launceston with parents 1949. f. James Henry Paul Maynard m. Augusta Lavinia Mansell. Measured as N.1663.

THOMAS (MAYNARD), JULIA, (F_2 Tas x F_1 Aus), b. Jan. 1880, d. 1907, age 27. f. Benjamin Maynard, senior m. Laura Frances Everett. marr. Phillip Thomas.

(MAYNARD), LAURA JANE MARIA ELIZABETH, also called Emmeretta Lydia Mama Typrie, (F_2 Tas x F_1 Aus), b. 5 Dec. 1887, d. about 1910, age 23 approx. f. Benjamin Maynard, senior m. Laura Frances Everett.

BROWN (MAYNARD), LEILA THOMAS, (F_2 Tas x ¼ Tas) = ⅜ Tas, b. 6 March 1902, d. 4 April 1932, age 30/1. f. John Maynard, junior m. Amanda Thomas. marr. Benjamin William Brown, junior.

(MAYNARD), LORNA JANE, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 24 July 1913, d. Jan. 1914, age 6 months. f. Benjamin Maynard, junior m. Claudia Mansell.

(MAYNARD), LUCY, F_2 Tas x F_1 Aus, b. 1904, d. 13 May 1913, age 9. f. James Maynard m. Ada Mary Everett.

THOMAS (MAYNARD), LUCY ISABEL, (F_2 Tas x F_1 Aus), b. 1 Nov. 1889, living 1939 age 49/3, d. at Launceston 1945 approx. f. Benjamin Maynard, senior m. Laura Frances Everett. marr. Phillip Thomas, senior. Measured as N.1660.

SUMMERS (MAYNARD), LYDIA, F_1 Aus, b. 1845 approx., d. 1880 approx., age 35 approx. f. Henry Maynard (Todd) m. Elizabeth, Australian full blood.

MANSELL (MAYNARD), LYDIA FRANCES, F_2 Tas, b. 22 Nov. 1868, d. 6 March 1913, age 44/3. f. John Maynard, senior m. Fanny Everett. Lydia was twin of Frances Lydia Maynard. marr. John Nance Mansell.

(MAYNARD), LYDIA SARAH VERNE, ¼ Aus, b. Nov. 1901, d. 31 Jan. 1902, age 2 months. f. Richard Maynard m. Florence Williams.

GORE (MAYNARD, also called STAFFORD), MABEL (MAY), ¼ Aus, b. 3 Sept. 1874, living 1939 age 64/4, still living 1949. f. David Maynard m. Eva Stafford (Cohen). marr. Frank Gore (or Gower).

(MAYNARD), MARGARET ROSE, (F_3 Tas x ¼ Aus), b. 22 Nov. 1935, living 1939 age 3/2, still living 1949 at Cape Barren Island. f. Richard William Darey Maynard m. Gladys Mansell.

(MAYNARD), MARY, F_1 Aus, b. 1853, d. 20 Jan. 1865, age 12. f. Henry Maynard, white m. Elizabeth, Australian full blood.

(MAYNARD), MARY FRANCES, (F_2 Tas x ¼ Aus), b. 3 Jan. 1887, d. about 1926, age 39 approx. f. James Richard Maynard m. Mary Armstrong.

(MAYNARD), MARY FRANCES, (F_3 Tas x (F_2 Tas x F_1 Aus)), b. 8 March 1926, living 1939 age 12/11, still living 1949. f. James Henry Paul Maynard m. Augusta Lavinia Mansell. Measured as N.1665. after 1939 marr. Mullett. has one boy and one girl.

(MAYNARD), MARY JANE, (F_2 Tas x F_1 Aus), b. Jan. 1882, d. 29 May 1882, age 5 months. f. James Richard Maynard m. Mary Armstrong.

(MAYNARD), MATILDA JESSIE, ¼ Aus, b. 5 Feb. 1879, d. 9 April 1897, age 18/2. f. David Maynard, senior m. Alicia Stafford (Cohen).

(MAYNARD), MINNIE JANE, (F_2 Tas x ¼ Tas) = ⅜ Tas, 1 Dec. 1889, living 1939 age 49/2, still living at Cape Barren Island 1949. f. John Maynard m. Amanda Thomas. Measured as N.1608.

(MAYNARD), MURIEL, (F_3 Tas x (F_2 Tas x F_1 Aus), b. 6 Dec. 1920, d. 31 Aug. 1934, age 13/9. f. Albert Henry Paul Maynard m. Claudia Mansell.

(MAYNARD), MURIEL AMANDA, ⅜ Tas x ((F_1 Aus x F_2 Tas) x F_3 Tas), b. 10 March 1937, living 1939 age 1/10, still living 1949. f. Irwin Maynard m. Phoebe Maynard. Measured as N.1681.

NORMAN (MAYNARD), PEARL, (¼ Aus x F_2 Tas), b. 1891 approx., living 1939 age 48 approx., still living in Melbourne 1949. f. James Richard Maynard m. Mary Armstrong.

MAYNARD (MAYNARD), PHOEBE, (F_2 Tas x ¼ Tas) = ⅜ Tas, b. 18 Sept. 1906, living 1939 age 32/4, d. at Cape Barren Island, 1 June 1939. f. John Maynard m. Amanda Jane Thomas. marr. Irwin Maynard. Measured as N.1646.

MANSELL (MAYNARD), RACHEL ALICE, also called Rachel Alice Bligh, F_2 Tas, b. 1857, d. 3 Nov. 1925, age 68. f. John Maynard, senior m. Fanny Everett. marr. Peter James Mansell.

(MAYNARD), ROSE AUSTRALIA, F_3 Tas x (F_2 Tas x F_1 Aus), b. 27 Dec. 1927, living 1939 age 11/1, still living 1949. f. James Henry Paul Maynard m. Augusta Lavinia Mansell. Measured as N.1666. after 1949 marr. Ronald Edwin Thomas. no children.

(MAYNARD), RUBY, (F_3 Tas x (F_2 Tas x ¼ Tas) = 7/16 Tas, b. 24 Nov. 1920, living 1939 age 18/2, living in Melbourne 1949. f. John Phillip Maynard m. Nellie Louisa Mansell. after 1939 marr. Welsh, white. has two girls.

GREEN (MAYNARD), RUBY IDA, (F_2 Tas x ¼ Aus), b. 2 May 1878, d. 1919-1926, age 42 approx. f. James Richard Maynard m. Mary Armstrong. marr. Vernard John Green.

BROWN (MAYNARD), SARAH, F_1 Aus, b. 1845, d. 15 May 1882, age 37. f. Henry Maynard (Todd) m. Elizabeth. marr. William Richard Brown.

BURGESS (MAYNARD), SARAH RACHEL BEETON, also called Sarah Beeton, (F_2 Tas x F_1 Aus), b. 6 Sept. 1885, d. 23 March 1931, age 45/7. f. Benjamin Maynard, senior m. Laura Frances Everett. marr. George Burgess, junior.

(MAYNARD), SYLVIA CHAPPELL, also called Silah, (F_2 Tas x white) x (F_2 Tas x ¼ Tas) = ¼ Tas x ¾ Tas, b. 21 March 1918, living 1939 age 20/10, still living 1949 in Melbourne. f. Edgar Leopold Maynard m. Marie Isabel Brown. after 1939 marr. but has no family.

(MAYNARD), THELMA JUNE, adopted family name NORMAN, (F_2 Tas x ¼ Aus) x (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 14 Aug. 1921, living 1939 age 17/5, still living 1949. f. Stanley Morton Maynard m. Eliza Beeton. Lately marr. Clive Edwin Beeton.

(MAYNARD), THELMA MERLE, known complex trihybrid 5th generation, b. 16 June 1937, living 1939 age 1/7, still living at Cape Barren Island 1949. f. Hubert James Maynard m. Violet Maynard.

MAYNARD (MAYNARD), VIOLET, (F_2 Tas x ¼ Aus) x ((F_2 Tas) x (F_1 Tas x F_1 Aus)), b. 1918, d. 15 Nov. 1938, age 20. f. Stanley Morton Maynard m. Eliza Beeton. marr. Hubert James Maynard.

(MAYNARD), VONDA LILY, (F_2 Tas x ¼ Aus), b. 7 Oct. 1934, d. 8 Nov. 1934, age 1 month. f. Richard William Darcy Maynard m. Gladys Mansell.

THOMAS (MAYNARD), WINNIE, (F_2 Tas x F_1 Aus), b. 1 Nov. 1889, d. 8 May 1911, age 21/6. f. Benjamin Maynard, senior m. Laura Frances Everett. marr. Ronald Thomas.

(MAYNARD), WINIFRED, also called Wynnie, (F_2 Tas x (F_2 Tas x F_1 Aus)), b. 25 Oct. 1925, living 1939 age 13/3, still living at Cape Barren Island 1949, unmarried. f. Albert Henry Paul Maynard m. Claudia Mansell. Measured as N.1664.

(MAYNARD), also called MANSELL, ZELA ELIZABETH, known complex trihybrid 5th generation, b. 9 Aug. 1938, living 1939 age 6 months. f. Hubert James Maynard m. Violet Maynard. adopted by Lewis John Mansell.

MAYNARD, male, ¾ Aus, b. living 1939 age f. David Maynard, junior m. Sheard, white.

MUNRO, also called MUNROE, Old Munro, 'Governor of the Straits', 'King of the Sealers', white, d. at Preservation Island, Dec. 1844, age given as 82. marr. Jumbo, Tasmanian full blood.

MUNRO (JUMBO), female, Tasmanian full blood. marr. Munro, white. by 1845 had had F_1 Tasmanian children who did not survive and are not listed in this study for lack of information.

NORMAN, ARTHUR, white. marr. Pearl Maynard, (¼ Aus x F_2 Tas).

OXFORD, FRED, white. marr. Lydia Summers (¼ Aus).

RHEW, ROBERT, also called Bob, white. marr. Ann, Australian full blood.

RHEW, also called Rue, THOMAS, also called Tom, F_1 Aus, b. 1857, d. 1900 approx., age 43 approx. f. Robert Rhew m. Ann Rhew fb. Aus.

RHEW, ANN, full blood Aus, b. d. 17 Dec. 1868, age marr. Robert Rhew.

(RHEW), BETTY, F_1 Aus, b. 1861, approx., d. ? 1885 approx. f. Bob Rhew m. Ann Rhew, full blood Aus.

(RHEW), RACHEL, F_1 Aus, b. 1860 approx., d. 1890 approx. f. Bob Rhew m. Ann Rhew, full blood Aus.

ROBERTSON, also called Robinson, male, (F_2 Tas x wh), b. 10 March 1878, believed died as infant. f. William Robinson (also called Holt and Robertson) m. Ellen Smith.

ROBERTSON, also called Robinson, ALBERT JAMES, (F_2 Tas x wh) = ¼ Tas, b. 21 May 1889, believed d. as infant. f. William Robinson (Holt and Robertson) m. Ellen Smith.

ROBINSON, CLAUD RICHARD, (F_2 Tas x wh), b. 26 Dec. 1898, living 1939 age 40/1, still living in Launceston 1949. f. William Robinson (also called Holt and Robertson) m. Ellen Smith.

ROBINSON, JOHN HAROLD, (F_2 Tas x wh), b. 13 Feb. 1893, living in 1911. f. William Robinson (Holt and Robertson) m. Ellen Smith.

ROBERTSON, also called Robinson, LOUIS HERBERT, (F_2 Tas x wh), b. 18 Dec. 1883, believed d. as infant. f. William Robinson (Holt and Robertson) m. Ellen Smith.

ROBERTSON, also called Robinson, PHILIP DANIEL, (F_2 Tas x wh), b. 28 Oct. 1881, believed d. as infant. f. William Robinson (Holt and Robertson) m. Ellen Smith.

ROBINSON, HORACE FREDERICK, also called Frederick Lewis, white, b. 3 July 1894. f. James Robinson m. Emily Wells. marr. Isabel Jessie Brown.

ROBINSON, TASMAN SMITH, (F_2 Tas x wh), b. 25 June 1897, living 1939 age 41/7, still living in Launceston 1949. f. William Robinson (Holt) m. Ellen Smith.

ROBERTSON, WILLIAM, also called William Robinson and William Holt. see under all three names for family and under William Holt for particulars of this man.

ROBINSON, also called Robertson, CLARA JANE, (F_2 Tas x wh) = ¼ Tas, b. 8 April 1886, d. 1892 approx., age 6 months. f. William Robinson (Holt) m. Ellen Smith.

ROBINSON, EDNA MATILDA MAY, 1/16 Aus, b. 18 March 1910, no further information. f. Horace Frederick Robinson m. Isabel Jessie Brown.

ROBINSON, PHYLLIS ALICIA ELLEN, 1/16 Aus, b. 25 July 1911, d. as adult. f. Horace Frederick Robinson m. Isabel Jessie Brown.

SAINTIE, also called Sainty, JOHN CHARLES, white, b. 1899, d. 27 Jan. 1937, age 38.

SAINTIE, MAURICE, junior, also called Sainty, Maurice Claud, ((F_2 Tas x wh) x wh) = ¼ Tas, b. 1916 approx., living 1939 age 23 approx. f. Morris Saintie m. Julia Burgess. marr. Valerie Amelia Burgess.

SAINTIE, MORRIS, senior, also called Maurice, white, dead. marr. Julia Burgess and Kathleen Mansell.

SAINTIE, STANLEY NORTON, wh x ((¾ Tas) x (F_2 Tas x F_1 Aus)), b. 24 March 1937, living 1939 age 1/10, still living 1949. f. Morris Saintie m. Valerie Burgess.

MAYNARD (SHEAN) or (SHEARD), female, white. marr. David Maynard, junior, ¼ Aus.

SMITH, also called Burwood, white. marr. Sarah, Tasmanian full blood.

SMITH, male, ¼ Tas, b. 1859 approx., d. 1889 approx., age 30 approx. f. William Smith, m. Fanny Cochrane.

SMITH, BEVENUTO, F_1 Tas, b. 1822, d. 11 June 1876, age 54. f. Smith m. Sarah, Tasmanian full blood.

SMITH, CHARLES, also called Charlie, F_2 Tas, b. 1850, d. 1889, age 39. f. John Smith, senior m. Jane Maynard.

SMITH, EDWARD, F_2 Tas, b. 18 Dec. 1858, d. 4 July 1913, age 54/7. f. John Smith, senior m. Jane Maynard. marr. Lucy Beeton.

SMITH, HUBERT HENRY, (Indet., x F. Tas), b. 11 Oct. 1914, d. 22 Aug. 1934, age 19/10. f. unknown m. Ethel Nancy Lane Smith, later Constantine.

SMITH, also called Burwood, JOHN, senior, F_1 Tas, b. 1821, d. 10 Oct. 1898, age 77. f. Burwood, also called Smith, white m. Sarah, Tasmanian full blood. marr. Jane Maynard.

SMITH, JOHN, junior, F_2 Tas, b. 1849, d. 30 Dec. 1937, age 89. f. John Smith, senior m. Jane Maynard. marr. Amelia Beeton.

SMITH, JOHN HENRY, senior, also called Henry Isaac, F_2 Tas, b. 20 Aug. 1878, d. 5 Dec. 1897, age 19/3. f. John Smith, junior m. Amelia Beeton.

SMITH, JOHN HENRY, junior, F_1 Tas, b. 12 Feb. 1896, d. 1 Sept. 1897 (data from tombstone), age 7 months. f. Tasman Smith m. Isabella Mansell.

SMITH, KENNETH JAMES, (F_2 Tas x ¼ Aus), x F_2 Tas), b. 22 Nov. 1914, living 1939 age 24/2. f. Tasman Smith m. Myrtle Alice Everett. (Believed assumed name of Adams, may be dead, living in Tasmania, 1949).

SMITH, PHILLIP, F_2 Tas, b. 1864, d. 6 April 1881, age 17. f. John Smith, senior m. Jane Maynard.

SMITH, PHILLIP JAMES, F_1 Tas, b. 4 Oct. 1887, d. 1 July 1926, age 38/9. f. Edward Smith m. Louisa Beeton.

SMITH, RICHARD SHANNON, F_2 Tas, b. 4 June 1869, d. 12 March 1898, age 28/9. f. John Smith, senior m. Jane Maynard.

SMITH, TASMAN, F_2 Tas, b. 1869, d. 15 June 1929, age 60. f. John Smith, senior m. Jane Maynard. marr. Isabella Mansell and Myrtle Alice Everett.

SMITH, TASMAN RENOLDS, ((F$_2$ Tas x ¼ Aus) x F$_2$ Tas), b. 19 Feb. 1926, living 1939 age 12/11. f. Tasman Smith m. Myrtle Alice Everett. (Believed assumed name Adams and to be living in Tasmania, 1949).

SMITH, WILLIAM, white, of Irish Town (now Nicholls Rivulet). marr. Fanny Cochrane. four children and by 1949 many descendants in Nicholls Rivulet and New Zealand of the 3rd and 4th generations.

HANDLEIRON (SMITH), ALICE ISOBEL, F$_3$ Tas, b. 31 Oct. 1889, living 1939 age 49/3, still living in Victoria 1949. f. Tasman Smith m. Isabella Mansell. marr. Elvin Handleiron.

MANSELL (SMITH), CLARA JANE, F$_3$ Tas, b. 1 Aug. 1857, d. 24 Aug. 1932, age 75/1. f. John Smith, senior m. Jane Maynard. marr. Thomas Edward Mansell, senior.

LAWRIE, also MAYNARD (SMITH), ELIZABETH, also called Betson, Betsy Melita, Betsy Maleta, F$_3$ Tas, b. 9 April 1898, living 1939 age 40/9, d. prior to 1949. f. Tasman Smith m. Isabella Mansell. marr. Claude Isaac Richard Maynard and Thomas Lawrie.

BROWN (SMITH), ELSIE LAVINIA, F$_3$ Tas, b. 8 July 1894, d. at Bellerive, as adult after 1911, age not indicated. f. Tasman Smith m. Isabella Mansell. marr. Willard Stanley Brown.

CONSTANTINE (SMITH), ETHEL NANCY LANE, F$_3$ Tas, b. 23 Aug. 1888, living 1939 age 51/5, still living at Launceston 1949. f. Tasman Smith m. Isabella Mansell.

THOMAS (SMITH), FRANCES MARY, also called Fan, F$_3$ Tas, b. 1886, d. 21 Sept. 1902, age 16. f. John Smith, junior m. Amelia Beeton. marr. James Thomas, junior.

(SMITH), GERTRUDE, F$_3$ Tas, b. 18 March 1861, d. 1869 approx., age 8 approx. f. John Smith, senior m. Jane Maynard.

HOLT, also called Robertson, Robinson, (SMITH), ELLEN, also called Helen, F$_3$ Tas, b. 1859 approx., d. 5 Sept. 1902, age 43 approx. f. John Smith, senior m. Jane Maynard. marr. William Robertson (Holt).

(SMITH), JULIA ISABELLA, F$_3$ Tas , b. 1881, d. 15 Aug. 1897, age 16. f. John Smith, junior m. Amelia Beeton.

(SMITH), LOUISA MARY, b. 1845, d. 6 Dec. 1846, age 8 months.

ADAMS (SMITH), MAGGIE, F$_3$ Tas, b. 31 Jan. 1897, d. in Hobart about 1932, age 35 approx. f. Tasman Smith m. Isabella Mansell. marr. Charles Adams.

SUMMERS (SMITH), MARGARET, also called Maggie, F$_3$ Tas, b. 1848, d. 1901 approx., age 53 approx. f. John Smith, senior m. Jane Maynard. marr. John Summers. one child by John Maynard, F$_1$ Tas.

(SMITH), MARY, F$_3$ Tas, b. 25 Jan. 1886, no other data. f. John Smith, junior m. Amelia Beeton.

BROWN (SMITH), MARY ANN, F$_3$ Tas, b. 12 Aug. 1855, d. 23 Dec. 1893, age 38/4. f. John Smith, senior m. Jane Maynard. marr. William Richard Brown.

MANSELL (SMITH), MATILDA FLORENCE, F$_3$ Tas, b. 8 June 1872, living 1939, age 66/7. f. John Smith, senior m. Jane Maynard. marr. William Henry Mansell. Measured as N.1692.

(SMITH), PHILIPPA ADELAIDE, F$_3$ Tas, b. 11 June 1883, d. 17 Dec. 1900, age 17/6. f. John Smith, junior m. Amelia Beeton.

SMITH (BURWOOD), SARAH, Tasmanian fullblood. marr. Smith, also called Burwood, white.

(SMITH), SARAH JANE, senior, F$_3$ Tas, b. 1875 approx., believed d. 1890 approx., age 15 approx. f. John Smith, junior m. Amelia Beeton.

MAYNARD (SMITH), SARAH JANE, junior, F$_3$ Tas, b. 8 Sept. 1891, living 1939 age 47/4, d. at Cape Barren Island 1 July 1939. f. Tasman Smith m. Isabella Mansell. marr. George Arnold Maynard. Measured as N.1638.

MAYNARD, also STAFFORD (COHEN), EVA, white, b. 1858, d. marr. Capt. Stafford, white, also John Maynard.

MAYNARD, also STAFFORD (COHEN), ALICIA EMMA, white, b. 1848, d. 12 Sept. 1926, age 78. f. Capt. Stafford m. Eva Cohen. marr. David Maynard, senior.

SUMMERS, EDWARD, also called Ted, (F$_2$ Tas x F$_1$ Tas), b. 30 Oct. 1875, living 1939 age 63/3, still living at Cape Barren Island 1949. f. John Maynard m. Margaret Smith. Measured as N.1686. marr. Winifred Jane Mansell. adopted by John Summers and Lydia Maynard.

SUMMERS, EDWIN RUSSELL, ((F$_2$ Tas x F$_1$ Tas) x F$_2$ Tas), b. 11 Nov. 1920, d. as infant. f. Edward Summers m. Winifred Jane Mansell.

SUMMERS, JOHN, also called Jack, white, still living in 1911. marr. Lydia Maynard, F$_1$ Aus, and Margaret Smith, F$_2$ Tas.

SUMMERS, JOHN HENRY, senior, also called Jack, ¾ Aus, b. 9 Feb. 1871, d. 1910 approx., age 39 approx. f. John Summers m. Lydia Maynard.

SUMMERS, JOHN HENRY, junior,((F$_2$ Tas x F$_2$ Tas) x F$_2$ Tas), b. 28 June 1910, d. as infant. f. Edward Summers m. Winifred Jane Mansell.

SUMMERS, RONALD EDWARD, ((F$_1$ Tas x F$_2$ Tas) x F$_2$ Tas), b. 15 Feb. 1908, living 1939 age 29/11, still living 1949. f. Edward Summers m. Winifred Jane Mansell. marr. Lialecta Olive Brown. Measured as N.1696.

SUMMERS, STANLEY, ((F$_1$ Tas x F$_2$ Tas) x F$_2$ Tas), b. 2 Aug. 1911, living 1939 age 27/6, still living at Cape Barren Island 1949. f. Edward Summers m. Winifred Jane Mansell. Measured as N.1700. after 1939 marr. Clyda Ernestine Maynard. has one child.

SUMMERS, female, (F$_2$ Tas x wh) = ¾ Tas, b. 21 Sept. 1880, d. as infant. f. John Summers m. Margaret Smith.

OXFORD (SUMMERS), LYDIA, also called Lydia Emma, ¾ Aus, b. 13 Dec. 1872, d. probably before 1900, age young adult. f. John Summers m. Lydia Maynard. marr. Fred Oxford, white.

FISHER (SUMMERS), MAGGIE, ¾ Aus, b. about 1880, d. probably about 1905, age young adult. f. John Summers m. Lydia Maynard.

(SUMMERS), MAVIS LAVINIA, b. 29 June 1919, living 1939 age 20/7, still living 1949. f. Edward Summers m. Winifred Jane Mansell. Measured as N.1678. after 1939 marr. Samuel Richard Thomas. has three boys.

EVERETT (SUMMERS), VERA, ((F$_1$ Tas x F$_2$ Tas) x F$_2$ Tas), b. 1906, living 1939 age 32, still living 1949. f. Edward Summers m. Winifred Jane Mansell. marr. Albert Everett. since 1939 has had another daughter.

MANSELL (SWINTON), GERTIE, white. marr. James Vivian Gladstone Mansell (F$_2$ Tas x white).

THOMAS, male, (F$_1$ Tas x F$_1$ Aus), b. 20 June 1874, d. 27 June 1874, age 7 days. f. Phillip Thomas m. Eliza Bligh.

THOMAS, male, (F$_2$ Tas x F$_1$ Aus) x (F$_1$ Tas x F$_1$ Aus), stillborn. f. John Thomas m. Annie Adela Maynard.

THOMAS, ALLAN FURNEAUX, also called Allen Ferneaux (*sic*), (F$_1$ Tas x F$_1$ Aus), b. 26 Feb. 1885, d. 15 March 1885, age 17 days. f. Phillip Thomas m. Eliza Bligh.

THOMAS, ALLAN JAMES, ((F$_1$ Tas x F$_1$ Aus) x (¾ Aus)), b. 22 Sept. 1926, living 1939 age 12/4, d. of infantile paralysis in Launceston about 1945. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard.

THOMAS, ARNOLD, (F$_1$ Tas x F$_1$ Aus), b. 15 Nov. 1867, d. before 1900, age adult. f. Phillip Thomas m. Eliza Bligh.

THOMAS, BEVIN EDWIN, ((F$_1$ Tas x F$_1$ Aus) x wh) x (F$_2$ Tas x ¾ Aus), b. 31 Aug. 1937, living 1939 age 1/5, still living 1949 at Cape Barren Island. f. Ronald Edwin Thomas m. Vida Robina Everett.

THOMAS, CAVEL GORDON, ((F$_1$ Tas x F$_1$ Aus) x (¾ Aus)), b. 28 Dec. 1935, living 1939 age 3/1, still living 1949 at Cape Barren Island. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. Measured as N.1688.

THOMAS, DAVID WILLIAM, complex trihybrid, b. 29 Jan. 1933, believed living 1939 age 6. f. John West or Arthur West m. Annie Adela Thomas.

THOMAS, EDWARD TRANSVAAL, b. 10 July 1936, living 1939 age 2/7. f. unknown m. Annie Adela Thomas.

THOMAS, JAMES, senior, F$_1$ Tas, b. 1828 approx., d. 1850 approx., age 22 approx. f. John Thomas m. Nimarana, Tasmanian full blood.

THOMAS, JAMES, junior, (F$_1$ Tas x F$_1$ Aus), b. 23 Oct. 1881, d. 1 March 1904, age 22/4. f. Phillip Thomas m. Eliza Bligh. marr. Frances Mary Smith.

THOMAS, JAMES TRANSVAAL, (F$_2$ Tas x F$_1$ Aus) x F$_1$ Tas x F$_1$ Aus), b. 11 June 1903, d. 23 Aug. 1934, age 31/2. f. Phillip Thomas m. Julia Maynard. marr. Rachel.

THOMAS, JOHN, also called Long Tom, white. marr. Nimarana, Tasmanian full blood.

THOMAS, JOHN, senior, also called Jack, (F$_1$ Tas x F$_1$ Aus), b. 20 April 1872, d. 20 July 1926, age 54/3. f. Phillip Thomas m. Eliza Bligh. marr. Annie Adela Maynard.

THOMAS, JOHN, junior, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. 1904, d. 27 July 1926, age 22. f. John Thomas, senior m. Annie Adela Maynard. photo. Man 1920 pl. K, f. 4

THOMAS, JOHN, 3rd ((F_1 Tas x F_1 Aus) x ¾ Aus)), b. 10 Oct. 1928, living 1939 age 10/3. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. Measured as N.1651.

THOMAS, LUCAS WILTON, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. 4 March 1923, d. 5 Sept. 1923, age 6 months. f. Phillip Thomas, junior m. Lucy Isabel Maynard.

THOMAS, PHILLIP, senior, also called Captain Phillip, F_1 Tas, b. 1831, d. 28 Feb. 1915, age 84. f. John Thomas m. Nimarana. marr. Jane West and Eliza Bligh. Photo. Man 1920 pl. K., fig. 2.

THOMAS, PHILLIP, junior, (F_1 Tas x F_1 Aus), b. 1 Jan. 1878, d. 13 Jan. 1924, age 46/0. f. Phillip Thomas, senior m. Eliza Bligh. marr. Julia Maynard and Lucy Isabel Maynard. Photo. Man 1920 text figure 11.

THOMAS, PHILLIP FRANCES, (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus), b. 1 Aug. 1905, d. 6 Aug. 1905, age 5 days. f. Phillip Thomas, junior m. Julia Maynard.

THOMAS, PHILLIP HENRY, ((F_1 Tas x F_1 Aus) x ¾ Aus), b. 7 Nov. 1924, living 1939 age 14/3, still living temporarily in Melbourne 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. Measured as N.1634.

THOMAS, REX TASMAN, also called Rex Edward, ((F_1 Tas x F_1 Aus) x ¾ Aus), b. 23 Dec. 1937, living 1939 age 1/1, still living at Cape Barren Island 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. Measured as N.1689.

THOMAS, RONALD, (F_1 Tas x F_1 Aus), b. 4 Feb. 1886, d. 25 July 1917, age 31/6. f. Phillip Thomas, senior m. Eliza Bligh. marr. Winnie Maynard and Alma Glesire Mansell. Photo. Man 1920 pl. K, fig. 9.

THOMAS, RONALD EDWIN, ((F_1 Tas x F_1 Aus) x wh), b. 24 May 1914, living 1939 age 24/8, still living on Cape Barren Island 1949. f. white m. Sophia Emma Thomas. marr. Vida Robena Everett, and prior to 1949 Rose Maynard. Measured as N.1580.

THOMAS, ROY GLADSTONE, (F_1 Tas x F_1 Aus) x wh) x (F_2 Tas x ¾ Aus), b. 5 Aug. 1935, living 1939 age 3/5, still living at Cape Barren Island 1949. f. Ronald Edwin Thomas m. Vida Robena Everett. Measured as N.1683.

THOMAS, SAMUEL HENRY, b. 19 June 1892, living 1939 age 46/7, still living 1949. f. Phillip Thomas, senior m. Eliza Bligh. marr. Elizabeth Rosetta Maynard. Measured as N.1582.

THOMAS, SAMUEL RICHARD, ((F_1 Tas x F_1 Aus) x (¾ Aus)), b. 8 April 1921, living 1939 age 17/10, still living on Cape Barren Island 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. after 1939 marr. Mavis Lavinia Summers. has three boys.

THOMAS, male, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. d. age f. Phillip Thomas, junior m. Julia Maynard.

(THOMAS), female, ((F_1 Tas x F_1 Aus) x F_3 Tas), stillborn. f. Ronald Thomas m. Alma Glesire Mansell.

(THOMAS), ALBINA FRANCES DEVONPORT, complex trihybrid 5th generation, b. 11 Aug. 1927, living 1939 age 11/5, still living in Launceston 1949. f. Ronald Edward Summers m. Annie Adela Thomas.

MAYNARD (THOMAS), AMANDA JANE, (F_1 Tas x wh) = ¾ Tas, b. 7 June 1866, living 1939 age 72/7, d. 30 June 1942 at Cape Barren Island. f. Phillip Thomas, senior m. Jane West. marr. John Maynard. Measured as N.1607.

(THOMAS), ANNIE ADELA, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. 25 May 1908, d. 15 July 1936, age 28/2. f. John Thomas, senior m. Annie Adela Maynard.

(THOMAS), BERIS SOPHIA, also called Berice Sophia, ((F_1 Tas x F_1 Aus) x wh) x (F_2 Tas x ¾ Aus), b. 8 Sept. 1933, living 1939 age 5/4, still living at Cape Barren Island 1949. f. Ronald Edwin Thomas m. Vida Robena Everett. Measured as N.1682.

(THOMAS), CORNELIA, also called Conelia, ((F_1 Tas x F_1 Aus) x ¾ Aus), b. 27 Oct. 1930, living 1939 age 8/3, still living at Cape Barren Island, unmarried, 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. Measured as N.1709.

MANSELL (THOMAS), DAISY CORNELIA, (F_2 Tas x (F_1 Tas x F_1 Aus)), b. 23 March 1908, d. 1932-1933, age 22-23. f. Phillip Thomas, junior m. Florence Maude Mansell (not Julia Maynard as sometimes stated). marr. Clarence Alexander Mansell.

(THOMAS), DOREEN CAMELIA, ((F_1 Tas x F_1 Aus) x ¾ Aus), b. 19 Jan. 1922 living 1939 age 17/0, still living at Cape Barren Island, unmarried, 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. Measured as N.1616.

(THOMAS), ELIZABETH, (F_1 Tas x F_1 Aus), b. 17 May 1875, d. 25 April 1883, age 7/11. f. Phillip Thomas, senior m. Eliza Bligh.

(THOMAS), EMMA, (F_1 Tas x F_1 Aus), b. 11 Sept. 1880, d. 10 Dec. 1880, age 3 months. f. Phillip Thomas, senior m. Eliza Bligh.

BROWN (THOMAS), FRANCES MARY, also called Fan, (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus), b. 24 July 1902, living 1939 age 36/6, ? d. after 1939. f. John Thomas, senior m. Annie Adela Maynard. Photo. Man 1920 pl. K, fig. 8, front view. marr. Claude Eyre Brown and John Smith Mansell.

(THOMAS), IRENE, (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus), b. 16 June 1900, d. 17 Aug. 1912, age 12/2. f. John Thomas, senior m. Annie Adela Maynard. Photo. Man 1920 pl. K, fig. 8, side view.

(THOMAS), IRENE PRISCILLA, (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus), b. 3 April 1921, living 1939 age 17/9, d. prior to 1949. f. Phillip Thomas, junior m. Lucy Isabel Maynard. Measured as N.1614. after 1939 marr. Lloyd Mansell. had two boys, one girl. Photo. Man, 1920, pl. K, fig. 9, side view.

(THOMAS), IRIS, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. 3 Aug. 1901, d. Dec. 1912, age 11/5. f. Phillip Thomas, junior m. Julia Maynard.

BEETON (THOMAS), JUDITH, also called Judy, (F_1 Tas x F_1 Aus), b. 22 Sept. 1869, d. 3 March 1928, age 58. f. Phillip Thomas, senior m. Eliza Bligh. marr. Herbert James Beeton.

(THOMAS), LAURA ADELIA, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. 9 June 1918, d. 23 Sept. 1929, age 11/4. f. Phillip Thomas, junior m. Lucy Isabel Maynard.

(THOMAS), LAVINIA FLORENCE, also called Sarina, b. 28 March 1933, living 1939 age 5/10, still living at Cape Barren Island 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. Measured as N.1687.

MANSELL (THOMAS), NANCY, also called Nance, Annie, F_1 Tas, b. 1840, d. 29 Feb. 1911, age 73. f. John Thomas, senior m. Nimerana, Tasmanian full blood.

MANSELL (THOMAS), PHILLIPA MALVINA PRISCILLA, (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus), b. 27 Sept. 1899, d. age . f. Phillip Thomas m. Julia Maynard. marr. Leonard Mansell. Photo. Man 1920, pl. K, fig. 7.

(THOMAS) PHYLLIS, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus), b. 1906, d. 1916, age 10. f. Phillip Thomas, junior m. Julia Maynard.

(THOMAS), PHYLLIS AMADA, ((F_1 Tas x F_1 Aus) x ¾ Aus), b. 28 May 1918, living 1939 age 20/8, still living at Cape Barren Island 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. marr. after 1939 to George Arnold Maynard. Measured as N.1611.

THOMAS ( ), RACHEL, b. 1908, d. 5 June 1932, age 24. marr. James Transvaal Thomas.

MANSELL (THOMAS), SOPHIA EMMA, also called Sophia Barren Thomas, (F_1 Tas x F_1 Aus), b. 6 Nov. 1888, living 1939 age 50/2, still living 1949. f. Phillip Thomas, senior m. Eliza Bligh. Measured as N.1610.

(THOMAS), VILMA ELIZA, ((F_1 Tas x F_1 Aus) x (¾ Aus)), b. 20 June 1919, living 1939 age 19/7, still living 1949. f. Samuel Henry Thomas m. Elizabeth Rosetta Maynard. marr. after 1939 Bernard Richard Maynard. Measured as N.1618.

WEST, ARTHUR ERNEST, ((F_2 Tas x ¾ Aus) x wh), b. 27 Dec. 1915, living 1939 age 23/1, still living 1949. f. John Arthur West m. Alma Lily Brown.

WEST, also called MANSELL, ELVIN, (F_2 Tas) x ((F_2 Tas x ¾ Aus) x wh)), b. 25 Jan. 1930, living, age 9/0, still living 1949. f. Edward Mansell m. Mary Jane West.

WEST, JOHN ARTHUR, white. marr. Alma Lily Brown, (F_2 Tas x ¾ Aus).

WEST, MERVIN LESLIE, ((F$_2$ Tas x ¼ Aus) x wh), b. 28 June 1921, living 1939 age 17/7, d. in Launceston after return from war service. was Japanese prisoner of war. f. John Arthur West m. Alma Lily Brown.

WEST, ELLA JANE, ((F$_2$ Tas x ¼ Aus) x wh), b. between 9 July and 24 Oct. 1927, living 1939 age 11, still living 1949 in Launceston. f. John Arthur West m. Alma Lily Brown.

GREEN (WEST), FLORENCE EVELYN, white. marr. Morton Green, ((F$_2$ Tas x ¼ Aus) x wh).

(WEST), GLADYS ALBERTA, ((F$_2$ Tas x ¼ Aus) x wh), b. 12 June 1928, living 1939 age 10/8, still living 1949, unmarried. f. John Arthur West m. Alma Lily Brown.

THOMAS (WEST), JANE, white, married Phillip Thomas, F$_1$ Tas.

MANSELL (WEST), MARY JANE, ((F$_2$ Tas x ¼ Aus) x wh), b. 1912 approx., living 1939 age 26 approx., still living in Launceston 1949. f. John Arthur West m. Alma Lily Brown. marr. Edward Mansell.

MAYNARD (WILLIAMS), also called Everett, FLORENCE ISABEL, white. marr. Richard Maynard and James Armstrong Everett.

WOODS, white, father of child by Clyda Robena Beeton.

APPENDIX B.

LIST OF BASS STRAIT ISLANDERS APPEARING IN GROUP PHOTOGRAPH TAKEN IN JANUARY, 1911.

(Enlarged prints of this photograph can be made available to researchers at cost on application to the South Australian Museum, Adelaide.)

X His Excellency Major General Sir Harry Barron, Governor of Tasmania.
1 Julia Ann Burgess (born Mansell), F_2 Tasmanian.
2 Esther Lily Everett (Burgess), (F_2 Tas x wh).
3 Clara Jane Mansell (Smith), F_2 Tas.
4 Sophia Emma Mansell (Thomas), (F_1 Tas x F_1 Aus).
5 Nellie Louise Mansell, F_3 Tasmanian.
6 Mrs. Farquhar, white.
7 Master Irwin Knight, white.
8 Nance Mansell (Thomas), F_1 Tasmanian.
9 Isabella Smith (Mansell), F_2 Tasmanian.
10 Amelia Smith (Beeton), F_2 Tasmania.
11 Esther Lily Brown (Burgess), (F_2 Tas x wh).
12 Mrs. Riddle, white.
13 Miss Riddle, white.
14 Mrs. Knight, white.
15 Phillip Thomas, F_1 Tasmanian.
16 John Smith, junior, F_2 Tasmanian.
17 Isaac Thomas Beeton, F_2 Tasmanian.
18 William Maynard, F_1 Australian.
19 John Maynard, junior, F_2 Tasmanian.
20 Miss Barrett, white.
21 Mr. G. W. Knight, white, School Teacher (retiring).
22 Master Knight, white.
23 John Thomas, senior, (F_1 Tas x F_1 Aus).
24 Herbert Thomas Burgess, ¾ Tasmanian.
25 Cleta Dora Mansell, F_3 Tasmanian.
26 Elsie Lavinia Smith, F_3 Tasmanian.
27 Alma Glesire Mansell, F_3 Tasmanian.
28 Maggie Smith, F_3 Tasmanian.
29 Captain J. M. Bladon, white, School Teacher (just arriving).
30 Mrs. Bladon, white.
31 Mr. W. A. Riddle, white
32 John Fisher, white.
33 Mr. Vic. Barrett, white.
34 Joseph Maynard, F_1 Australian.
35 Harry Armstrong, junior,(F_2 Tas x ¼ Aus).
36 Edward Smith, F_2 Tasmanian.
37 Benvenuto Stanley Everett, F_2 Tasmanian.
38 Albert Stanley Everett, (F_2 Tas x ¼ Aus).
39 Henry Maynard, senior, F_1 Australian.
40 Benjamin Maynard, junior, (F_2 Tas x F_1 Aus).
41 Ronald Thomas, (F_1 Tas x F_1 Aus).
42 John Harold Robinson, (F_2 Tas x white).
43 James Maynard, F_1 Australian.
44 Allan Montgomery Burgess, (F_2 Tas x white).
45 James Thomas Mansell, senior, F_2 Tas.
46 Edgar Leopold Maynard, (F_2 Tas x ¼ Tas).
47 Claude Eyre Brown, (F_2 Tas x white).
48 John Phillip Maynard, ⅞ Tasmanian.
49 Henry William Brown, ¼ Australian.
50 Benjamin Maynard, senior, F_1 Australian.
51 Percy Edward Burgess, (F_2 Tas x wh).
52 Phillip James Smith, F_3 Tasmanian.
53 Mr. Sam Barrett, white.

54 Mr. R. Davey, white.
55 Mr. S. Riddle, white.
56 Tasman Smith, F_2 Tasmanian.
57 James Armstrong Maynard, ¾ Australian.
58 Andrew Armstrong Maynard, (F_2 Tas x ¼ Aus).
59 Stanley Morton Maynard, (F_2 Tas x ¼ Aus).
60 Henry George Brown, (F_2 Tas x ¼ Aus).
61 Julian Clifford Everett, (F_2 Tas x (F_2 Tas x F_1 Aus)).
62 John Summers, white.
63 James Vivian Gladstone Mansell, (F_2 Tas x white).
64 Archibald Douglas Mansell, F_3 Tasmanian.
65 John Nance Mansell, F_2 Tasmanian.
66 Leila Thomas Maynard, (F_2 Tas x ¾ Tas).
67 Miss M. Riddle, white.
68 unidentified Islander.
69 Miss V. Riddle, white.
70 Miss M. Archer, white.
71 Alberta Brown (F_2 Tas x ¼ Aus).
72 Augusta Lavinia Mansell, F_3 Tasmanian.
73 Henrietta Olive Victoria Brown, (F_2 Tas x ¼ Aus).
74 ? Elizabeth Rosetta Maynard, ¾ Australian.
75 Violet Gorda Mansell, F_3 Tasmanian.
76 Irene Thomas, (F_1 Tas x F_1 Aus) x (F_2 Tas x F_1 Aus).
77 unidentified Islander said to be a Mansell.
78 Beatrice Evelyn Maynard, (F_2 Tas x ¾ Tas).
79 Lucy Isabel Maynard, (F_2 Tas x F_1 Aus).
80 Emily Alice Everett Maynard, (F_2 Tas x F_1 Aus).
81 Elizabeth (Betsy) Smith, F_3 Tasmanian.
82 Sarah Jane Everett, (F_2 Tas x ¼ Aus).
83 John William Brown, (F_2 Tas x wh).
84 Jack Vale Maynard, (F_2 Tas x F_1 Aus).
85 Lily Everett, (F_2 Tas x ¼ Aus).
86 Donald James Thomas Mansell, (F_2 Tas x white).
87 Isaac James Thomas Mansell, (F_2 Tas x white).
88 Fred Howard, a servant with John Maynard and not known as a halfcaste.
89 Benjamin William Brown, junior, (F_2 Tas x ¼ Aus).
90 Master G. Archer, white.
91 Benjamin George Brown, (F_2 Tas x wh).
92 George Ernest Mansell, F_3 Tasmanian.
93 Willard Stanley Brown, (F_2 Tas x ¼ Aus).
94 William John Green, white, husband of Ruby Ida Maynard.
95 Mr. F. H. Archer, white.
96 John Arthur West, white husband of Alma Lily Brown.
97 Mr. Jones, white.
98 Julia Maria Sarah Burgess, (F_2 Tas x white).
99 Madge Victoria Mansell, F_3 Tasmanian.
100 unidentified Islander.
101 Caroline Frances Brown, (F_2 Tas x wh).
102 W. Riddle, white infant.
103 Doris Esme Brown, ¾ Australian.
104 Sarah Rachel Brown, (F_2 Tas x wh).
105 Frances Mary Thomas, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus)
106 Iris Thomas, (F_2 Tas x F_1 Aus) x (F_1 Tas x F_1 Aus).
107 unidentified Islander, girl.

108 Lily May Mansell, F$_1$ Tasmanian.
109 unidentified infant.
110 unidentified Islander.
111 unidentified Islander.

The group photograph is of particular interest since it would seem that the Islanders have been grouped consciously or otherwise according to their genetic relationships, so that F$_1$ Tasmanians, F$_2$ Tasmanians, F$_3$ Tasmanian blocks may be detected as well as blocks of Australian hybrid types. Since the evidence for the existence of this grouping has only been brought out by an entirely independent compilation of genealogies it may be considered as offering an interesting and wholly unexpected form of check on the general veracity of the data submitted in this paper. Identifications were made in 1939 and again in 1949 by some of these present in the photograph when it was taken.

APPENDIX C.

LIST OF BIRTHS OF BASS STRAIT ISLAND HYBRIDS, 1 FEBRUARY, 1939—31 JANUARY, 1949.

(EVERETT), PATRICIA MARGARET, b. 15 March 1939. f. Albert Stanley Everett m. Vera Summers.

BROWN, ATHOL CLYDE, b. 24 March 1939. f. Donald Leslie Brown m. Louisa Adelaide Beeton.

MAYNARD, THOMAS EDWARD, b. 1 June 1939. f. Irwin Maynard m. Phoebe Maynard.

SAINTY, IAN WILLIAM, b. 4 June 1939. f. Maurice Claud Sainty m. Valerie Amelia Burgess.

(SUMMERS), JANETTE, b. about July 1939 in Launceston, d. 25 July 1941, age 2 years. f. Ronald Edward Summers m. Lialeeta Olive Brown.

(MANSELL), MARGARET JEAN, b. 19 Sept. 1939, d. same day. f. Sydney Ernest Mansell m. Violet Gordest Mansell.

EVERETT, LUCAS JULIAN, b. Sept. 1939 in Launceston, d. 15 July 1940, age 10 months. f. Julian Clifford Everett m. Beatrice Evelyn Maynard.

BEETON, b. 11 Nov. 1939, d. 12 Nov. 1939, age 12 hours. f. Wilfred Beeton m. Elvie Florence Brown.

BURGESS, ATHOL EDWARD, b. 16 Dec. 1939. f. Edmund Edwin Burgess m. Julia Lavinia Beeton.

EVERETT, male, b. 16 Jan. 1940. f. Keith Everett m. Eva Gwendoline Maynard.

(MANSELL), LEILA LAVINIA, b. 10 Feb. 1940. f. Edward William Mansell m. Mary Jane West.

SAINTY, JACK REGINALD, b. 16 July 1940. f. Maurice William Sainty m. Valerie Amelia Burgess.

GREEN, CYRIL MORTON, b. 27 Aug. 1940. f. Morton Clear Green m. Florence Evelyn West.

(MAYNARD), LORA MALATA, b. 24 Sept. 1940. f. Benjamin Tasman Barren Maynard m. Stella Roseanna Mansell.

BEETON, BARRY, b. 28 Dec. 1940. f. Victor Harold Albert Beeton m. Ivy Florence May Jones.

(LAWRIE), CONNIE CHRISTINA, b. 26 Dec. 1940. f. (Lawrie, white man, married her mother afterwards and she later divorced him), unmarried m. Una Christina Mansell.

SUMMERS, LYLE, b. 3 Jan. 1941. f. Ronald Edward Summers m. Lialeeta Olive Brown.

THOMAS, KELVIN LEON, b. 26 Jan. 1941. f. Samuel Henry Thomas m. Rosetta Elizabeth Maynard.

(BROWN), DOROTHY MAY, b. 2 March 1941. (Benjamin W. Brown was father and has claimed child although he has not married her mother), unmarried m. Mavis Lavinia Summers.

(EVERETT), HELEN ELIZABETH, b. 30 March 1941. f. George Henry Paul Everett m. Harriet Isabel Beeton.

(BROWN), GLORIA JANE, b. 22 June 1941. f. Harvey Garfield Brown m. Athalie Lavinia Maynard.

(BURGESS), MARION JULIANNA, b. 4 Sept. 1941. f. Percy Edward Burgess m. Gladys Mary Lowery.

(MAYNARD), BARBARA LAVINIA, b. 11 Oct. 1941. f. Bernard Richard Maynard m. Vilma Eliza Thomas.

MAYNARD, RICHARD ERNEST BARREN, b. 27 Oct. 1941. f. Benjamin Tasman Barren Maynard m. Stella Rosina Mansell.

BROWN, DONALD LESLIE, junior, b. about Dec. 1941 in Launceston, d. 21 May 1942. f. Donald Leslie Brown, senior m. Louisa Adelaide Beeton.

SAINTY, BARRY CLAUDE, b. 1 Feb. 1942. f. Maurice Claude William Sainty m. Valerie Amelia Burgess.

(BURGESS), ENA WANDA DAVID, b. about Feb. 1942 in Launceston, d. 12 Aug. 1942, age 6 months. f. Reginald David Burgess m. Edna Mary Maynard.

MAYNARD, ERIC GEORGE, b. 24 March 1942. f. George Arnold Maynard m. Phyllis Amada Thomas.

(Lowery), Pauline Maleta, b. 6 April 1942. f. Harold George Lowery, white m. Mildred Heen Mansell.
Guarino, Rex Milson, b. 20 May 1942. f. Attilio Guarino m. Dulcie Ella May Mansell.
Everett, Denis, b. 5 Sept. 1942. f. George Henry Paul Everett m. Harriet Isabel Beeton.
Everett, Keith James, b. 22 Oct. 1942. f. Keith Everett m. Eva Gwendoline Maynard.
Brown, Bryon Edward, b. 10 Nov. 1942. f. Harvey Garfield Brown m. Athalie Lavinia Maynard.
(Maynard), Kathleen Frances, b. 7 Dec. 1942. f. Richard William Darcey Maynard m. Gladys Mansell.
Guarino, Bruce Thomas Edward, b. 13 June 1943. f. Attilio Guarino m. Dulcie Ella May Mansell.
Beeton, Vivian Bruce, b. 9 July 1943. f. (Beeton) m. Lenora Kathleen Beeton.
(Maynard), Elizabeth, b. 8 Oct. 1943, d. 10 Oct. 1943. f. George Arnold Maynard m. Phyllis Amada Thomas.
Thomas, Graham Stanley, b. 12 Nov. 1943. f. Samuel Richard Thomas m. Mavis Lavinia Summers.
Sainty, Donald George, b. 30 Nov. 1943. f. Maurice Claude William Sainty m. Valerie Amelia Burgess.
Brown, Kevin Burwood, b. 4 Dec. 1943. f. Harvey Garfield Brown m. Athalie Lavinia Maynard.
Maynard, Bernard James, b. 2 April 1944. f. Bernard Richard Maynard m. Vilma Eliza Thomas.
Summers, Ronald John, b. 25 May 1944. f. Ronald Edward Summers m. Lialeeta Olive Brown.
Maynard, Daryl George, b. 2 June 1944, d. 21 June 1944. f. m. Florence Isabel Maynard.
(Maynard), Brenda Lillian, b. 2 June 1944. f. Hubert Maynard m. Mona Lillian Brown.
Mansell, Desmond Walter, b. 22 Aug. 1944. f. Clarence Alexander Mansell m. Clydia Robina Beeton.
Sainty, Rex MacDonald, b. 25 Jan. 1945. f. Maurice Claude William Sainty m. Valerie Amelia Burgess.
Mansell, Stuart Leicester, b. 21 Jan. 1945. f. Claude Burwood Mansell m. Sarah Rachel Brown.
(Guarino), Betty Ann, b. 26 Feb. 1945. f. Attilio Guarino m. Dulcie Ella May Mansell.
(Mansell), Olive Alberta, b. 11 June 1945. f. Edward William Mansell m. Mary Jane West.
Maynard, Daryl James, b. 29 June 1945. f. Edmund James Maynard m. Elsie Maud Everett.
Thomas, Ian Richard, b. 10 July 1945. f. Samuel Richard Thomas m. Mavis Lavinia Summers.
Maynard, Gerald Allan, b. 23 June 1945. f. George Arnold Maynard m. Phyllis Amada Thomas.
Rooke, Leonard Bruce, b. 14 July 1945. f. Lyndon Rooke m. Theda Daisy Everett.
Summers, Desmond Royal, b. 25 Sept. 1945. f. Stanley Summers m. Clida Ernestine Maynard.
(Sainty), Lola Elizabeth Jane, b. 27 May 1946. f. Maurice Claud William Sainty m. Valerie Amelia Burgess.
Beeton, Wayne Douglas, b. 6 June 1946. f. m. Mary Alice Isabella Beeton.
(Brown), Lillian Marion, b. 6 Oct. 1946. f. m. Athalie Lavinia Brown (Maynard).
(Maynard), Loretie Rose, b. 14 Nov. 1946. f. Bernard Richard Maynard m. Vilma Eliza Thomas.
(Summers), Linda Lavinia, b. 11 June 1947. f. Stanley Summers m. Clida Ernestine Maynard.
Burgess, Norton Godfrey, b. 8 March 1947. f. Percy Edward Burgess m. Gladys Mary Lowery.
(Green), Laurel Ruby, b. 3 April 1947, d. 6 April 1947. f. Morton Clear Green m. Florence Evelyn West.

ROOKE, LYNETTE, b. 12 Oct. 1947. f. Lyndon Rooke m. Theda Daisy Everett.
MAYNARD, GARRY MITCHELL, b. 24 Nov. 1947. f. m. Florence Isabel Maynard.
(THOMAS), MAUREEN, b. 9 Dec. 1947. f. Samuel Richard Thomas m. Mavis Lavinia Summers.
(MAYNARD), LETITIA MARY, b. 28 March 1948. f. Edmund James Maynard m. Eliza May Everett.
MAYNARD, MICHAEL JAMES, b. 18 Aug. 1948. f. George Arnold Maynard m. Phyllis Amada Thomas.
BROWN, NORMAN WILLIAM, b. 16 Sept. 1948. f. Donald Leslie Brown m. Louisa Adelaide Beeton.
MANSELL, JOSEPH MURRAY, b. 5 Oct. 1948. f. Morgan Mansell m. Jessie Elizabeth Troman.
MAYNARD, male, b. 4 Jan. 1949, d. 5 Jan. 1949. f. m. Florence Maynard.

Description of Plates

PLATE I

Fig. 1.—Lawrence Maynard 7/16 Tasmanian, at age 15 years 2 months, 1939. (Measured as N.1693 in Expedition series).

Fig. 2.—Ronald Edward Summers ((F$_1$ Tas x F$_2$ Tas) x F$_3$ Tas) at age 30, 1939. (Measured as N.1696.)

Fig. 3.—Lawrence Maynard at age 25 years 2 months, February 1949.

Fig. 4.—Athol Clyde Brown, trihybrid, son of Donald Leslie Brown and Louisa Adelaide Beeton, b. 24 March 1939, at age 9 years 11 months.

Fig. 5.—Denis Brown, trihybrid, albino, full brother of Athol, born 1945. (Another full brother, Norman William, born 16 Sept. 1948, also is albino).

Fig. 6.—Nance Mansell (Thomas) F$_1$ Tasmanian.

Fig. 7.—Phillip Thomas F$_1$ Tasmanian photograph perhaps taken in 1911.

PLATE II

Scene in home of Andrew Maynard, junior, Cape Barren Island. The portrait on the wall is of John Maynard, F$_1$ Tasmanian.

PLATE III

Fig. 1.—Henry Beeton, F$_1$ Tasmanian.

Fig. 2.—George Everett, F$_1$ Tasmanian.

Fig. 3.—Fanny Smith (Cochrane), F$_1$ Tasmanian.

Fig. 4.—Smith, white.

Fig. 5.—James Everett, white.

PLATE IV

Fig. 1.—Elizabeth Everett, F$_2$ Tasmanian, born 1854, died 19 Sept. 1912; not married.

Fig. 2.—Lucy Jane Everett, F$_2$ Tas, born approximately 1857, died 23 Jan. 1934; not married.

Fig. 3.—Rachel Adelaide Beeton (born Everett), F$_2$ Tas, b. 1880, died 3 Aug. 1910.

Fig. 4-5.—Matilda Florence Mansell (Smith), F$_2$ Tas, at age 66 years, 1939. (Measured as N.1692 in Expedition series).

PLATE V

Group photograph of Bass Strait Islanders, taken on the occasion of the visit of His Excellency Major-General Sir Harry Barron, Governor of Tasmania, to Cape Barren Island, in January 1911. See Appendix B for list of identifications.

L. G. Shea, Government Printer, Tasmania.

New Series, No. 3. 15th November, 1955.

RECORDS OF THE QUEEN VICTORIA MUSEUM,

LAUNCESTON

The Occurrence in Tasmania of *Lactoria Diaphana* (Bloch & Schneider, 1801)

By

HEATHER L. JONES, B.Sc.

1 PLATE

A specimen (QVM No. 1955 : 5 : 8) of *Lactoria diaphana* (Bloch and Schneider, 1801) was sent to the Queen Victoria Museum on June 6th, 1955, by Mrs. A. Cornish of Bicheno, on the East Coast of Tasmania.

This fish was washed up on Circular Beach two miles from Bicheno during what Mrs. Cornish describes in a letter to the Museum on July 20th as "a very violent and freak rough sea that played havoc with fishing boats here". The fish must have been brought down from more northerly waters by the same current that brings down the sea snakes of the genera *Hydrus* and *Platurus*, which have only been recorded on the East Coast. It is very interesting to see *Lactoria* so far out of its usual range.

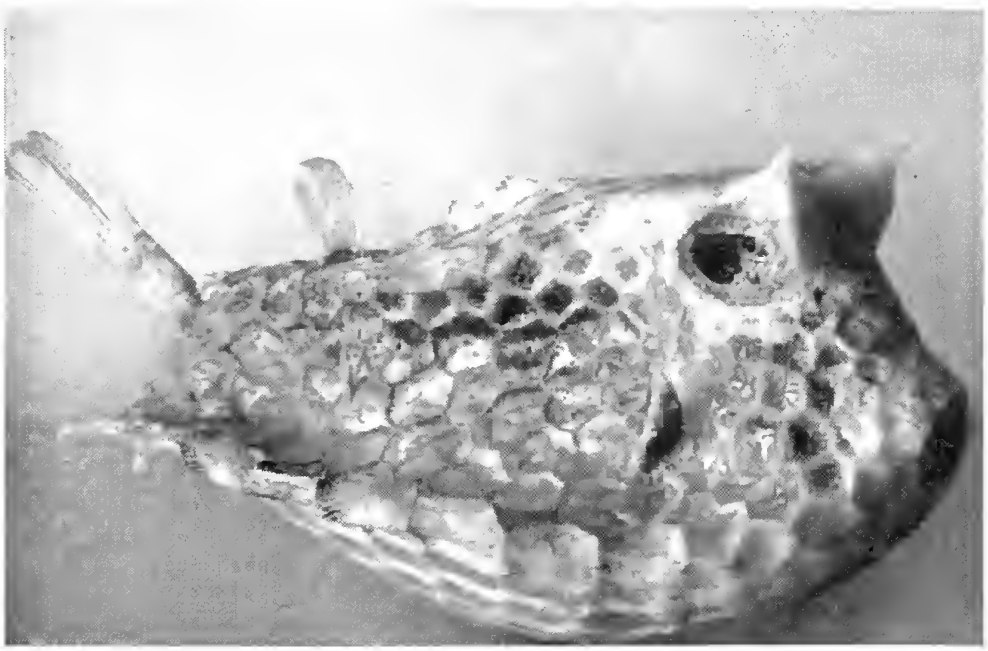
The specimen was kept in a refrigerator for about ten days and then presented to the Museum, its condition being very satisfactory. It has since been dried and preserved.

It is apparently an immature specimen, the total length being only 4·65" and standard length 3·56", the British Museum Catalogue giving the length as 8½".

It has not previously been recorded for Tasmania, nor for Victoria or South Australia.

McCulloch—The Fishes and Fishlike Animals of N.S.W., 1929, notes "A tropical specimen which is sometimes stranded on our ocean beaches".

McCulloch's Check-list, 1929, notes the distribution as N.S.W., South Africa, East Indies, Pacific Ocean and Japan. The British Museum Catalogue, 1870 records the locality as "From the Cape of Good Hope to Japan and Australia".



ACKNOWLEDGMENTS

We acknowledge with thanks the photo of *Lactoria diaphana* taken by "The Examiner".

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New Series, No. 4. 15th November, 1955.

RECORDS OF THE QUEEN VICTORIA MUSEUM,
LAUNCESTON

The Appearance of *Acridotheres tristis* Linne, in Northern Tasmania

By

HEATHER L. JONES, B.Sc.

Although the Indian Myna, *Acridotheres tristis* Linne, has been quite common on the mainland of Australia, especially about Melbourne, for many years, it has not previously been recorded in Tasmania.

On March 8th, 1955, a bird (QVM No. 1955 : 2 : 1) was brought to the Queen Victoria Museum and Art Gallery, Launceston, and was subsequently determined as *Acridotheres tristis*. The bird, a nestling, had been taken from a nest under the eaves of a house at Mayfield, a northern suburb of Launceston. It was one of a family of six or more, which had been occupying the nest for at least two years.

The presence of Indian Mynas was reported in the Hobart "Mercury" and Launceston "Examiner" on March 9th, and subsequently several verbal reports came to hand of these birds having previously been seen in Tasmania.

Mr. Ray Evans reported seeing them at "Wonder Valley", Scottsdale, in 1940.

Mr. H. J. King observed them on three separate occasions at Mayfield about three years ago.

H. B. Martin in letters to the Editor in the Launceston "Examiner" on Tuesday, 15th March, 1955, stated that over a period of two years he had frequently observed specimens in the Mayfield area.

Finally, in the files of the Queen Victoria Museum, a report from Fr. Ehrenheim, Blackwood Creek, was found. He says he saw them in September, 1951, at Cressy, and was quite positive of their identification.

There are no reports of their having been seen in Southern Tasmania during this period. About thirty years ago several pairs were brought to Hobart, but they neither survived nor bred. The last pair is reported to have died about twenty-five years ago. As this introduction was not recorded there is no check on actual dates or numbers. However, Mr. M. S. R. Sharland says none have been seen in the South since this first appearance.

It thus appears that the birds have been not uncommon in the North of the State for at least three years, but apparently occasional ones reached the north before even that time. Whether these were isolated individuals or whether they were small breeding colonies is not known. The nest at Mayfield is the first conclusive evidence of a colony having been established.

The question of how they came to Tasmania now arises. Did they fly across Bass Strait or were they accidentally or deliberately introduced on boats crossing the strait?

Although the length of the flight is certainly not beyond their capabilities, since these birds have such highly developed navigational abilities the likelihood of a direct flight is small unless it occurred accidentally as the result of a storm. It does not seem particularly likely that just aimless wandering would have brought them here.

L. G. SHEA, Government Printer, Tasmania.

New Series, No. 5. 15th July, 1956.

RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

Supplement to

A List of the Crustacea of Tasmania

By

ERIC R. GUILER
(*Department of Zoology, University of Tasmania*)

Since the publication of my paper listing the Crustacea of Tasmania (Guiler, 1952) records of species new to Tasmania have been made and many new localities have been added to those recorded previously. In addition to this, new species have also been described and it is in order to bring the earlier Crustacea list up to date that this supplement has been prepared.

Only those records which add to our knowledge of the distribution of a species have been added to the list.

I am indebted to Mr. A. M. Olsen, M.Sc., for additional records and to Mrs. Radford, M.Sc., for a list of species in the Tasmanian Museum collections.

Class: BRANCHIOPODA

Order: NOTOSTRACA

Lepidurus viridis Baird	Carrick and Lake Dulverton	Evans, 1942.
	Colebrook, Ross	(Tas. Mus.)
	Perth	(Laun. Mus.)

Order: CONCHOSTRACA

Family: DAPHNIDAE

Ceriodaphnia quadrangula	Lake Dobson, Brocks Dam, Lake Leake, Waverley Road, Launceston (= *C. hakea* and *C. planifrons*)	Brehm, 1953*b*.
Simocephalus vetula Muller	Lagoon of Islands, (= *S. dulvertonensis* Smith)	Brehm, 1953*b*.
australiensis Dana	Mathinna	Brehm, 1953*b*.
Daphnia carinata King	Little Lake Waterhouse, Tunbridge, Rostrevor Dam	Brehm, 1953*b*.

Family: BOSMINIDAE

Bosmina hagmanni	Cleveland Lagoon (= *B. brevirostris*, *Rotunda* and *sorelli*)	Brehm, 1953*b*.

Family: CHYDORIDAE

Dunhevedia crassa King	Waverley Road, Launceston	Brehm, 1953*b*.

Class: OSTRACODA
Order: PODOCOPA
Family: CYTHERIDAE

Limnocythere conifera Brehm	Cleveland Lagoon	Brehm, 1953*b*.

Class: COPEPODA
Family: CENTROPAGIDAE

Boeckella denticornis Brehm	Little Waterhouse Lake	Brehm, 1953*a*.
lacuna Fairbridge	Tunbridge, Lake Dulverton Penna Dam, Rostrevor Dam, Brocks Dam	Brehm, 1953*a*.
pseudocheles Searle	Waverley Rd., Launceston	Brehm, 1953*a*.
Branella gibbosa Brehm	Lake Dulverton	Brehm, 1953*a*.
tasmanica Smith	Big Lake Waterhouse	Brehm, 1953*a*.
expansa Sars	Big Lake Waterhouse	Brehm, 1953*a*.
Gladioferens henryae Brehm	Big Lake Waterhouse	Brehm, 1953*a*.

Family: CYCLOPIDAE

Mesocyclops leuckarti Claus	(= *C. albicans* and *C. dulvertoncnsis*)	Brehm, 1953*a*.
Macrocyclops albidus Jur.	Cleveland Lagoon, Tunbridge, Jordan River	Brehm, 1953*a*.
Ectocyclops phaleratus Koch	Jordan River	Brehm, 1953*a*.
Diacyclops crassicaudoides Kiefer	Waverley Rd., Launceston	Brehm, 1953*a*.
Eucyclops nichollsi Brehm	Cleveland Lagoon, Tunbridge, Waterhouse Lake	Brehm, 1953*a*.
miser Brehm	Cleveland Lagoon	Brehm, 1953*a*.
speratus v. tasmanica Brehm	Jordan River	Brehm, 1953*a*.

Family: HARPACTICOIDA

Delachauxiella salvatoris Brehm	Waverley Rd., Launceston, Jordan River, Big Lake Waterhouse	Brehm, 1953*a*.
incerta Brehm	Lagoon of Islands	Brehm, 1953*a*.
Chappuisiella australica (Sars)	Big Lake Waterhouse	Brehm, 1953*a*.

Class: CIRRIPEDIA

Order: THORACICA

Family: LEPADIDAE

Conchoderma aurita (L.)	On *Coronula* on *Megaptera*, Marion Bay 10/1952	

Family: BALANIDAE

Coronula diadema (L.)	On fins of *Megaptera*, Marion Bay 10/1952	
balaenaris (Gmelin)	On fins and lips of *Megaptera*, Marion Bay 10/1952	

Class: MALACOSTRACA

Sub-class: Hoplocarida

Family: SQUILLIDAE

Squilla miles (Hess)	Eaglehawk Neck 9/1935	Tas. Biol. Survey
oratoria v. *inornata* Tate	Tasmania	Hale, 1924.
Hemisquilla stylifera M. Edw.	Tasmania	Hale, 1924.
Lysiosquilla perpasta Hale	Eaglehawk Neck (W. Stephenson) Tasman Peninsula	Tas. Biol. Survey.
vercoi Hale	Coles Bay 2/1941	Tas. Biol. Survey, determined and recorded by Stephenson (1954).

Sub-class: Peracarida

Order: MYSIDACEA

Family: GASTROSACCINAE

Paranchialina angusta (Sars)	D'Entrecasteaux Channel 1/1948	

Order: CUMACEA

Family: DIASTYLIDAE

Dicoides fletti Hale	Babel Island	Hale, 1946.
Gynodiastylis ornata Hale	Babel Island	Hale, 1946.

Family: LAMPROPIDAE

Hemilamprops diversa Hale	Maria Island 12/1944	Tas. Biol. Sur.

Family: NANNASTACIDAE

Nannastacus lima (Hale)	(= *Cumella lima* Hale)	Hale, 1946.
Campylaspis similis Hale	Babel Island	

Order: ISOPODA

Family: IDOTEIDAE

Paridotea munda Hale	Sandy Bay 12/1952	
angulata (Pallas)	Recherche Bay 12/1952, Blackman's Bay 4/1952 (Coll. V. V. Hickman)	
Euidotea peronii (M.Edw.)	Swansea, Stanley	Tas. Museum.

Family: SPHAEROMIDAE

Cymodoce gaimardii M.Edw.	Derwent River, Green Island	Tas. Museum.
bidentata v. *tasmaniensis* Baker	Simpson's Bay	Baker, 1928
Zuzara venosa (Stebbing)	Swansea, Eaglehawk Neck, Bramble Cove, Meredith River	Tas. Museum.
Exosphaeroma gigas (Leach)	Eaglehawk Neck, Kingston, Bellerive	Tas. Museum.
Cerceis trispinosa (Haswell)	Eaglehawk Neck, D'Entrecasteaux Channel 3/1950	
tridentata (M. Edw.)	D'Entrecasteaux Channel 1/1950	
Cassidinopsis tasmaniae Baker	Tasmania	Hale, 1927.

Family: LIMNORIIDAE

Limnoria quadripunctata Holthuis	Snug 10/1952 identified by R. J. Menzies	

Family: SEROLIDAE

Serolis minuta Beddard	Dredged, Gordon 6/1951	

Family: AEGIDAE

Aega serripes (M.Edw.)	On gills of skate, Oyster Bay, Falmouth	Hale, 1940.
Rocinela sila Hale	Oyster Cove	Tas. Museum.

Family: CYMOTHOIDAE

Livoneca raynaudii M.Edw.	Off Tasman Head, Entrance to Oyster Bay, off West Coast, off East Coast Flinders Island, eastern slope of Bass Strait	Hale, 1940.

Family: EURYDICIDAE

Cirolana woodjonesi Hale	100 fathoms off Tasmania	Tas. Museum.
macleayii White	Howrah	Tas. Museum.
rossi Miers	100 fathoms off King Island (A. M. Olsen, identified by H. M. Hale)	

Family: CYMOTHOIDAE

Nerocila orbignyi (Guérin)	Wedge Bay, Derwent River, Bruni Island on *Callorhynchus*—St. Helens (A. M. Olsen)	Tas. Museum.
Ourozeuktes owenii M.Edw.	Devonport	Tas. Biol. Sur.
Codonophilus imbricatus (Fabr.)	S.E. of Flinders Island	Hale, 1940.

Family: PHREATOICIDAE

Mesacanthotelson decipiens Nicholls	Waterhouse Lake, 1937	Tas. Biol. Sur.

Order: AMPHIPODA

Family: GAMMARIDAE

Elasmopus diemenensis (Haswell)	Eastern slope of Bass Strait	Chilton, 1921.

Family: AORIDAE

Leucothoe philacantha (Stebbing)	Eastern slope of Bass Strait and Tasmanian Coasts	Chilton, 1921.

Family: PHRONIMIDAE

Phronima sedentaria Forskal	Eaglehawk Neck, 1951	

Family: HYPERIIDAE

Euthemisto gaudichaudii (Guérin)	Port Sorell 10/1950 (per A. M. Olsen)	

Family: CAPRELLIDAE

Caprella acanthopoda Guiler	Dredged—Gordon area 3/1952	Guiler, 1954.
aequilibra Say	Dredged south of Gordon 3/1952, on *Cystophora*, Coles Bay 2/1950	
inermis Haswell	On *Cystophora*, Coles Bay 2/1950	Guiler, 1954.
tasmaniensis Guiler	Dredged off Gordon 6/1950 and 3/1952	Guiler, 1954.
Dodecas tasmaniensis Guiler	Dredged, south of Gordon 3/1952	Guiler, 1954.
hexacentrum Mayer	Dredged, south of Gordon 2/1947 and 3/1952	Guiler, 1954.
grandimana Guiler	Dredged, south of Gordon 2/1947 and 3/1952	Guiler, 1954.
Proto tuberculata Guiler	Dredged, south of Gordon 2/1947 and 3/1952	Guiler, 1954.
Orthoprotella tasmaniensis Guiler	Dredged, south of Gordon 2/1947 and 3/1952	Guiler, 1954.
Orthoprotella gordoni Guiler	Dredged off Gordon	Guiler, 1954.

Sub-class: **Eucarida**

Order: DECAPODA

Sub-order: Macrura

Family: ALPHEIDAE

Leptochela robusta Stimpson	East of Moncoeur Island	Bate, 1888.
Crangon edwardsi (Audouin)	Kingston Beach, Green Island	Tas. Museum.

Family: ATYIDAE

Paratya tasmaniensis Riek	Huon at Judbury (Coll. A. G. Nicholls)	

Family: PALAEMONIDAE

Palaemon serenus (Heller)	= *Leander serenus*	
Macrobrachium intermedius (Stimpson)	= *Palaemon intermedius* (Stimpson) Coles Bay 4/1952 (A. M. Olsen) Opossum Bay 10/1949	Holthuis, 1952.
Parapandalus leptorhynchus (Stimpson)	Flinders Island, Georges Bay	McNeill and Ward, 1930.

Family: CRANGONIDAE

Pontophilus intermedius (Bate)	Tinderbox 3/1950	

Family: SCYLLARIDAE

Ibacus incisus (Leach)	E. Devonport 1906	Laun. Mus.

Family: PARASTACIDAE

Astacopsis gouldi Clark	Kingston Beach, Piper's River	Tas. Museum. Laun. Mus.
tricornis Clark	Lake Pedder, 1938	Tas. Museum.
Parastacoides tasmanicus (Erichson)	Lake St. Clair (coll. G. B. Sharman), Port Davey 1937	Tas. Museum.

Sub-order: Anomura

Family: CALLIANASSIDAE

Upogebia simsoni (Thomson)	Margate (coll. V. V. Hickman, identified H. M. Hale)	Laun. Mus.
Callianassa ceramica Fulton & Grant	Cowrie Point, Stanley 1938 Beauty Point (coll. V. V. Hickman, ident. H. M. Hale)	Laun. Mus.

Family: PAGURIDAE

Paguristes tuberculatus Whitelegge	Derwent River, Seven Mile Beach	McCulloch, 1913

Sub-order: Brachyura

Family: CANCRIDAE

Cancer novae-zealandiae (Jaq. & Lucas)	Ralph's Bay 8/1948, Opossum Bay 10/1949	

Family: HYMENOSOMATIDAE

Halicarcinus australe (Haswell)	Strahan 10/1952 (coll. D. E. Kurth)	
rostratus (Haswell)	Dredged D'Entrecasteaux Channel 1/1948	

Family: MAJIDAE

Achaeopsis curvirostratus (M.Edw.)	Bass Strait	Haswell, 1882.
Paramithrax peronii M.Edw.	Adventure Bay, Dover	Hodgson, 1902, Tas. Mus.
minor (Filhol)	D'Entrecasteaux Channel 1/1948 and 1/1950	
Naxia aurita (Latr.)	Orford	Tas. Museum.
Herbstia spinulosus (Haswell)	Cockle Creek 12/1952	

Family: PORTUNIDAE

Ovalipes bipustulatus (M.Edw.)	Dunalley 1930, Opossum Bay 10/1949, Stewarts Bay 3/1952, Carlton 3/1952	Tas. Museum.

Family: GONEPLACIDAE

Litocheira bispinosa Kinahan	Hobart	McCulloch, 1913.
	Bass Strait	Miers, 1886.

Family: PINNOTHERIDAE

Pinnotheres novae-zealandiae Filhol	Oyster Cove	Tas. Museum.

Family: GRAPSIDAE

Cyclograpsus punctatus (M.Edw.)	Swansea All exposed Tasmanian Coasts	Tas. Museum.
Paragrapsus quadridentatus (M.Edw.)	Swansea, Recherche Bay 12/1952	Tas. Museum.
gaimardii (M. Edw.)	All sheltered coasts	
Plagusia capensis de Haan	Port Arthur, Pt. Puer 4/1952	

Family: MICTYRIDAE

Mictyris platycheles (M.Edw.)	South Arm, Eaglehawk Neck	

Family: LEUCOSIIDAE

Phlyxia intermedia Miers	Gordon 6/1951	
Philyra murrayensis Rathbun	Dredged, Tinderbox 1/1950, Blackman's Bay 12/1948	

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RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

Cainozoic History of Mowbray Swamp and Other Areas of North-Western Tasmania

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7 Plates and 6 Text Figures

Abstract

The Tertiary limestone succession in the Marrawah area includes a limestone from Green Point which contains basalt boulders and a limestone at Redpa with *Lepidocyclina* correlated with the Batesford Limestone of Victoria. Basalt overlies this limestone sequence disconformably at Mount Cameron West. A basalt at Britton's Swamp contains fragments of Tertiary limestone. Limestone also occurs near Irishtown and, in this area, basalts overly sands and lignite containing *Nothofagus*, *Triorites harrisii* and *Dacrydiumites*. Basalt occurs above and below "*Turritella* Limestone" at Doctor's Rocks, Wynyard. Lignite from the Launceston Beds near Evandale contains *Trisaccites* which indicates probably an Eocene or Lower Oligocene age and the lignite is overlain by basalt. Faulting at Launceston probably commenced in the Eocene or before. Basalts at Marrawah, Irishtown and Stanley were poured out into the valley tracts of streams. It is doubtful that Mount Cameron West is part of a laccolith, as has been previously suggested, and it is here considered that The Nut at Stanley is a volcanic neck.

Mowbray Swamp is underlain by an Upper Pleistocene marine sand on which rest a number of sand ridges trending E.S.E. In the swales between these ridges peat and sandy peat accumulated more than 37,000 years ago (C14 date). The peat contains the bones of *Nototherium* spp., other giant marsupials and emus, freshwater molluscs and ostracods, as well as pollens of *Banksia*, *Haloragis* and *Eucalyptus*. Rocky Cape Caves were probably produced as sea caves when the sea was 70 feet higher than at present and at this time the marine sand underlying Mowbray Swamp was deposited. The ancient sand ridges were formed as

sea-level fell from this height. Peat and marl formed in a swamp at Pulbeena and one of the peat samples gave an age of 13,500 years (C14 date). The holotype of *Nototherium tasmanicum* is figured. Tasmanian aboriginal rock carvings occur in Quaternary aeolianite north of Mount Cameron West and their middens occur in the dunes just south of the mountain. Duck River is incised 15 to 20 feet into its channel and is depositing a delta in Duck Bay. There is a series of Holocene sand ridges on Perkins' Island and east of the mouth of the Black River, where eighteen ridges in three sets show a total fall of about 10 feet in sea-level. The Rocky Cape Caves contain deep kitchen middens from which many fish bones and a bone awl were obtained, indicating that the Tasmanian Aborigines ate fish and used bone implements.

Introduction

During May and June of 1952 the authors spent a week in the Smithton area collecting samples for radiocarbon dating and data on the occurrence of *Nototherium* as well as investigating other problems in the Cainozoic history of the north-western part of the State. Later, Gill spent a week in the Queen Victoria Museum examining their collections. Early in 1955, Banks visited the Wynyard and Marrawah areas to check on the ages of some of the basalts.

Acknowledgments

Many people have contributed directly and indirectly to this paper and to some extent the authors have acted as observers and co-ordinators of results from many sources.

Our work in the field was greatly reduced by help generously given by Mrs. E. C. Lovell and family, Mr. F. S. R. Shoobridge and Mr. B. Edwards of Mella. Mr. J. Loveday, C.S.I.R.O. Soils Division, told one of us (M.R.B.) of the probable occurrence of early Tertiary basalt at Wynyard and helped to check this point in the field. Our work at Irishtown was considerably aided by the guidance of Mr. Roy Quilliam. Mr. A. Walker, Smithton, sent specimens of basalt with limestone inclusions from Britton's Swamp to E. D. Gill. In the Evandale area Mr. K. R. von Steiglitz guided us to the spot near Evandale from which "cycad cones" had been collected.

Dr. M. F. Glaessner, Mr. A. C. Collins and Mr. A. N. Carter have all provided identifications of foraminifera collected together with comments on their age or ecology. Miss Hope Macpherson identified the shells in the marl and mound spring deposits at Smithton and in the middens at Rocky Cape; Mr. Gilbert Whitley identified the fish bones from the middens. The wood from the peat in Mowbray Swamp was identified by Mr. H. D. Ingle, C.S.I.R.O., Forest Products Division, and Dr. Isabel Cookson identified the pollens. Dr. A. W. Beasley, National Museum of Victoria, commented on the mineralogy of the marl from Mella and checked observations on the tuff from Circular Head. Mr. P. Garrett and Miss P. Reynolds, Public Library of Victoria, checked on comments in Captain Cook's log on the eating of fish and use of bone implements by aborigines. Mr. G. Baker kindly cut a slide from the Britton's Swamp material. Mr. G. D. Hubble, provided helpful information on soils (see appendix). The work originated with a request from Dr. E. S. Deevey, Director of the Geochronometric Laboratory at Yale University, for material for radiocarbon analysis and he did four analyses recorded herein. To all these people we acknowledge our indebtedness.

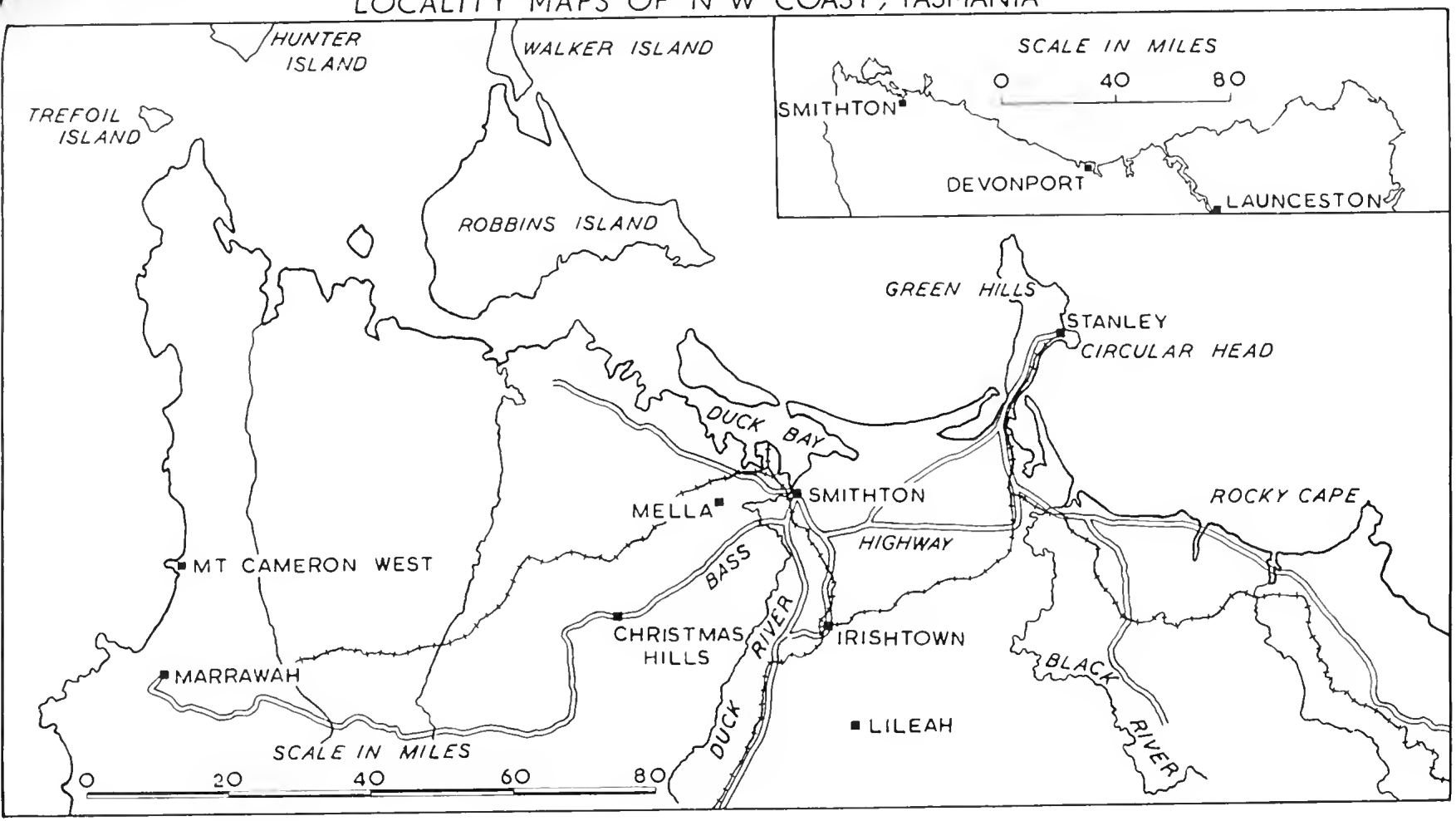

LOCALITY MAPS OF N W COAST, TASMANIA
HUNTER ISLAND
WALKER ISLAND
TREFOIL ISLAND
ROBBINS ISLAND
GREEN HILLS
STANLEY
CIRCULAR HEAD
DUCK BAY
SMITHTON
MELLA
ROCKY CAPE
HIGHWAY
MT CAMERON WEST
BASS
CHRISTMAS HILLS
DUCK RIVER
IRISHTOWN
BLACK RIVER
MARRAWAH
LILEAH
SCALE IN MILES
0 20 40 60 80
SCALE IN MILES
0 40 80
SMITHTON
DEVONPORT
LAUNCESTON

FIG. 1.

We also wish to acknowledge with thanks permission of the Surveyor General to publish the air photos of Rocky Cape, the permission of the Smithton Harbour Trust and the Mowbray Swamp Drainage Board to use and publish parts of their charts. Finally, we would like to thank Mrs. I. Mead, formerly Director of the Queen Victoria Museum, for making available collections and other facilities at the Museum.

Tertiary System

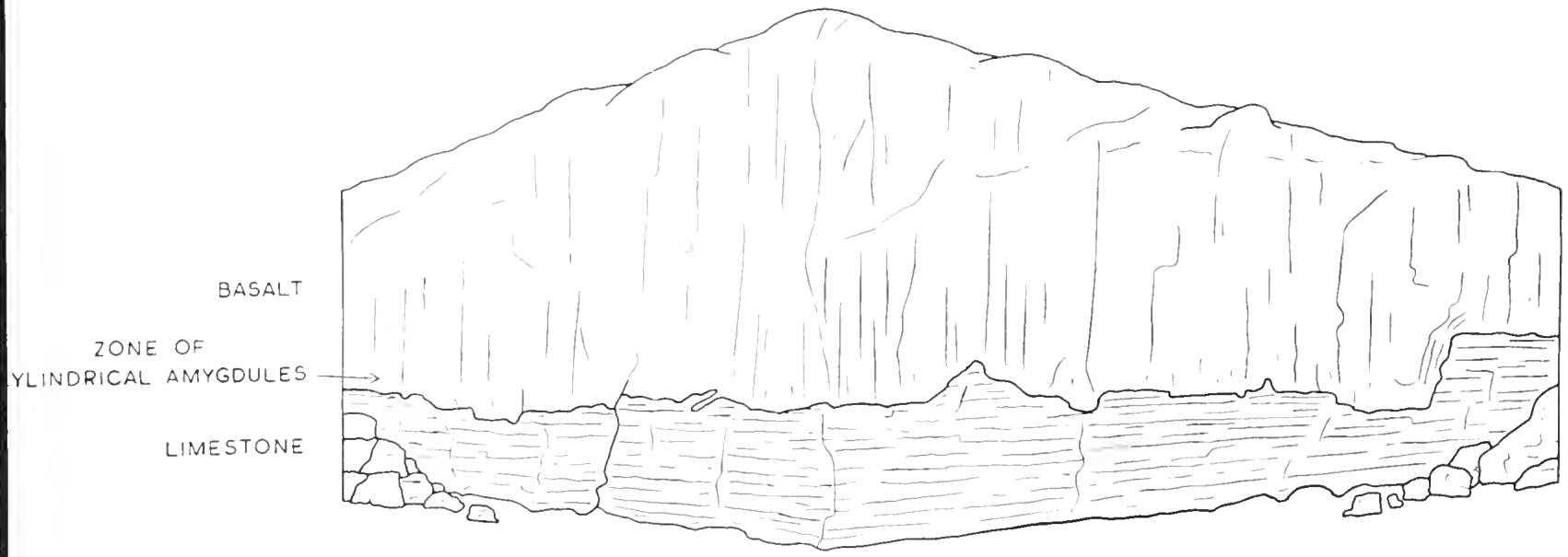
Marrawah

Tertiary limestone is widespread in the Marrawah district as shown by Nye (1941) who considered that at least some of them were younger than the basalts in the district. This was based on evidence of basalt boulders in limestone (Nye and Blake, 1938) and on the impression that the limestone fringed the basalt hills.

In an endeavour to check on this evidence, one of the authors visited the district. In a small quarry 38 chains south-east of the tip of Green Point, on the east side of a road to a farm house, bryozoal limestone was found with several angular fragments of weathered basalt. The basalt showed no sign of epidote, an almost universal constituent of the Cambrian spilites of Tasmania and is probably Tertiary. Petrological work will be necessary to prove this. This limestone is higher than that at Mount Cameron West. The precise age is not yet known but it is probably not younger than Middle Miocene. Thus it is probable that there were pre-Middle Miocene basalts at Marrawah and possibly they were pre-Upper Oligocene.

Several miles south of Redpa, near the western margin of the plain of the Welcome River, Nye (1941, p. 14) recorded a limestone sequence 100 feet thick overlying dolomite unconformably at about 135 feet above sea-level. The sequence is overlain by basalt in the surrounding hills. It has recently been shown to contain a bed of friable foraminiferal limestone with *Lepidocyclina* (*Trybliolepidina*). This is correlated with the Batesford Limestone of Victoria of Lower Miocene age. Details of these observations in the Marrawah area will be published elsewhere, but this summary is provided so that the chronology of the north-west can better be evaluated.

Edwards (1941*b*), described the basalt of Mount Cameron West as a laccolith intruding into "flat-lying (?) Permo-Carboniferous sediments". The strata underlying the basalt were examined on the southern flank of the Mount at and just above sea-level, where they consist of yellow, white and red limestone with flaggy to massive bedding. The rock is friable, consisting almost exclusively of the calcareous remains of marine invertebrates, particularly bryozoa, so is best named a calcarenite, most of the fragments being clastic and of sand grade. Macrofossils include lamellibranchs (*Spondylus*, *Pecten*), brachiopods (*Magellania*) and echinoids. Foraminifera include *Carpenteria rotaliformis* Chapman and Crespin, *Cassidulina subglobosa* Brady, *Cibicides* close to *ungerianus* (d'Orbigny), *Notorotalia* probably *howchini* Chapman, Parr and Collins, and cf. *Pseudogaudryina crespinae* Cushman. Mr. A. C. Collins considered that the most probable age is Balcombian (in the wide sense). Dr. Glaessner also kindly examined a sample and reported, "I consider the fauna as late Oligocene, related to the upper part of the Torquay Group and its equivalent in South Australia. It does not contain the restricted pelagic species of the Lower Miocene Balcombian (*Austrotrillina* Zone) or the Upper Eocene (*Hantkenina* Zone)." Taken together, the reports suggest a Longfordian age, but this needs further investigation. Crespin (1945) has reported



Block Diagram Showing Contact Between Tertiary Limestone and Basalt on South Side of Mt. Cameron West

FIG. 2.

Longfordian limestone from King Island in Bass Strait. A point of interest recorded by Nye (1941, p. 14), is that the base of the limestone south of Redpa is at 135 feet. This seems to indicate that the limestone transgressed over a fairly uneven surface because it extends to below sea-level at Mount Cameron West. Another point of interest is that the limestone is often as high as 250 feet above sea-level. This probably means that the sea was that much higher in the Mid-Tertiary but, until detailed field work is done, the possibility of faults having elevated both base and top cannot be overlooked.

The basalt overlies the limestone with a marked disconformity as can be seen in the cliffs to the south of Mount Cameron West. The disconformity surface is quite irregular and indicates some considerable period of erosion between the deposition of the limestone and the outpouring of the basalt. This surface is shown in the block diagram (text-figure 2). The only effect of the basalt on the limestone is the hardening of the latter to a depth of a few inches. Near the contact the basalt is very fine grained, almost tachylytic in places, and is remarkable for the long cylindrical (pipe) amygdules, generally one quarter to one half of an inch in diameter, filled with calcite, which rise six inches to a foot above the contact. These amygdules attain a maximum diameter of three quarters of an inch; some are simply branched but most are solitary pipes. These indicate that the basalt cooled at the surface of the earth, or very close to it.

The basalt of Mount Cameron West extends in an unbroken ridge eastwards to the main basalt plateau and neither the field occurrence of the basalt, nor its relation to the sediments, requires the postulation of a laccolith, but agrees well with the idea that it is simply a thick flow or series of flows. In the cliff at the south end of Mount Cameron West, moderate columnar jointing can be seen in the basalt, some of the columns being over six feet in estimated diameter. The columns seem to indicate that there was but a single thick flow. It appears likely that Mount Cameron West is a remnant of a dissected flow which originally poured down a valley running approximately west to the position of the Mount. The presence of such a valley seems indicated by the various heights of Tertiary limestone outcrop as recorded by Nye (1941). Thomas (1945) reported that "It is extremely doubtful whether Mount Cameron West is a laccolith, as although the main peak may be considered as a plug, the two small peaks are composed of basalt flows, resting on the denuded flanks of the Miocene limestone." It is very difficult to reconstruct a sufficient cover of Tertiary sediments in the area to halt the upward progress of the basaltic magma in order to produce a laccolith and on this count too it seems likely that the basalt is extrusive.

Observations at Marrawah thus indicate that basalts were possibly erupted before the Upper Oligocene, that limestone was deposited during the Upper Oligocene and Lower Miocene and that these were probably eroded to form valleys up to 200 feet deep before basalt covered them. The upper basalts are therefore younger, possibly considerably younger, than Lower Miocene.

The vertical nature of the cliff at the south end of Mount Cameron West is due to the erosion by the sea of the Tertiary limestone at its base, thus causing collapse of the columns of basalt above. This is not a rapid process however, as there is an aboriginal kitchen midden among the boulders of the talus slope lying against the limestone at the foot of the cliff, and the aborigines have not lived in that area for over 75 years.

Basalt from the north end of Britton's Swamp contains pieces of baked fossiliferous Tertiary limestone, with *Pecten* cf. *antiaustralis*, a piece of pyrite-bearing Palaeozoic sedimentary rock and pieces of opaline silica. The limestone is

highly fossiliferous and contains *Carpentaria, Triloculina, Sigmoilina* and other Miliolid genera. Unfortunately there was insufficient evidence for an age determination and Mr. Carter suggested that ". . . possibly metamorphism destroyed all the small hyaline foraminifera. The association of *Carpentaria* with abundant Miliolids suggests a shallow water deposit." The basalt tends to follow the outlines of the fossils and a bryozoan can be recognized in the basalt which has digested the limestone matrix. This occurrence is of interest in indicating that Tertiary limestone occurs well inland in this district.

Lileah and Irishtown

Thomas (1944) recorded Tertiary limestone from near Irishtown but did not state precisely where.

On the basaltic plateau east of Irishtown (south-east of Smithton), a tunnel, 3 chains long, has been excavated in Tertiary deposits under basalt on R. V. McKay's farm (Smithton, Run 4, No. 30, 809; 6·6 cm. N.W. of C.P.). Three feet of lignite were observed covered by carbonaceous sand then clayey sand. Samples of wood and carbonaceous sand were collected. The former proved on sectioning to be too collapsed for identification. Pollens occur in the carbonaceous sand and include:

Nothofagus (*brassii* type)
Nothofagus sp. *a* (*menziesii* type)
Triorites harrisii Couper (perhaps the most numerous type)
Myrtaceidites parvus anesus Cookson and Pike
Myrtaceidites mesonesus Cookson and Pike
Podocarpus sp.
Dacrydiumites florinii Cookson and Pike
Dacrydiumites mawsonii Cookson
cf. *Polypodium* (fern)
Smooth trilete fern spore.

This Tertiary flora disappeared from S.E. Australia by the end of the Pliocene (Gill, 1952).

At Lileah, in a creek bed south of a house (Aerial photo Smithton Run 2, No. 30,913; 5·4 cm. S.W. of C.P.), lignite occurs, covered by a partly silicified sandstone, which is light yellowish brown to reddish brown in colour due to ferruginization. Some nodules of limonite were noted. Two geochemical processes are represented here which must have taken place at different times because of the different pH conditions involved. It is probable that the silicification took place first and the ferruginization later, during the weathering of the basalt. The lava is very deeply weathered, nine to ten feet of dark red loam being visible in the road cuttings. Its physiographic occurrence and degree of weathering are reminiscent of the Older Basalt of Victoria, New South Wales, and Queensland. The lignite contains milky quartz gravel in places. Wood from this bed proved to have its cells too collapsed for identification and no pollen was found in the sample collected for pollen analysis.

Nye, Finucane and Blake (1934) have shown that the basalt in this area was erupted as four flows to a total thickness of over five hundred feet and that between the flows are deposits of quartzites, gravels, sandstones and clays with one lignitic formation. These authors suggested that presence of a pre-basaltic valley "trending east-north-easterly from the vicinity of the Arthur River, through Trowutta, towards the Stanley Peninsula" where it is probably represented by the basalt of the Green Hills. The existence of this pre-basaltic river was also thought probable by Edwards (1941*a*) who also deduced valleys entering the main

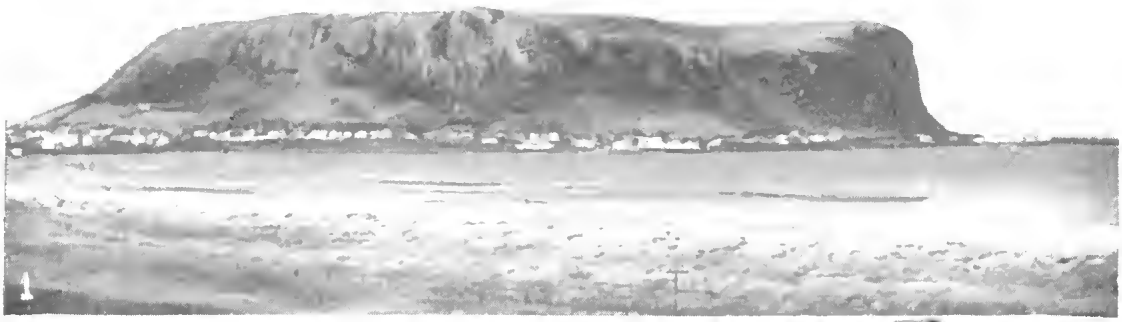


PLATE VII.

FIG. 1. General view of The Nut, Stanley

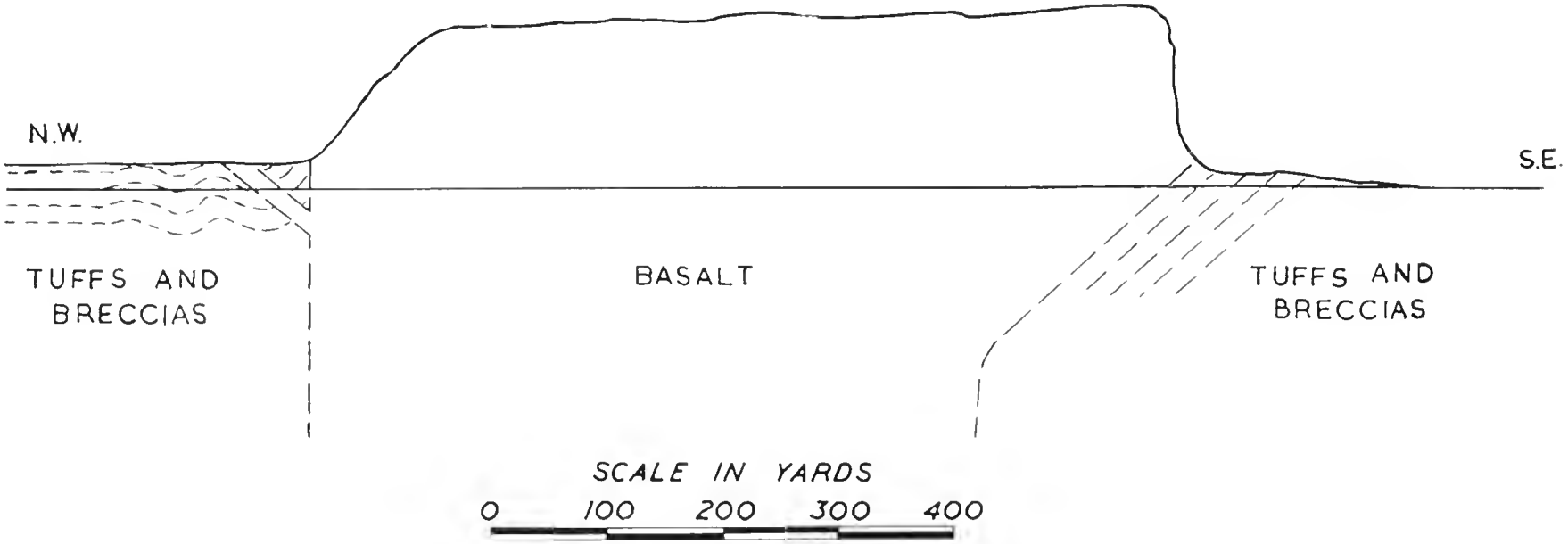
FIG. 2.—Shore platform of basaltic ejectamenta near the Stanley cemetery. Part of The Nut can be seen in the background.

one from the east near Circular Head. The sandstones and conglomerates of the inter-basaltic formations were probably derived from the Bryant Hill Quartzites (Carey and Scott 1952), which would have formed the sides of the fossil valley, the topography covered by the basalt had a low relief with gentle slopes as shown by the relative heights of the base of the basalt. A rough average gives the gradient of the former valley floor from Edith Creek to the sea at Green Hills as 25 feet per mile, while from Edith Creek to Irishtown the grade was about 50 feet per mile.

Circular Head (Plate 7)

Circular Head is a prominent topographic feature of the far North-West coast of Tasmania. It has been described as a crinanite laccolith by Edwards (1941*b*) who wrote, "On the north-western side, on the beach below the Stanley cemetery, the scree overlies soft mudstones and grits which are exposed in the wave-cut bench. These sediments . . . are presumably of Permo-Carboniferous age". The rocks in the shore platform near the cemetery were examined and also those on the south side of The Nut, in a quarry behind the wharves. According to Edwards, they also outcrop on the northern end of Godfrey's Beach where they are overlain by basalt, but this exposure was not examined. The rocks near the cemetery are volcanic ejectamenta of all sizes from fine tuff to breccia, most being coarse tuff. Brownish in colour and very porous, they seem generally to be rather decomposed. They are finely laminated to massive, although in places the bedding surfaces of the tuffs in contact with the breccias are most irregular. Cross bedding is also present, but insufficient observations were made to determine if this was of aeolian or aqueous origin. The dip of the beds varies from steeply dipping to the north to almost horizontal and in general the dip seems to steepen as the inferred contact with the igneous rock is approached. Detailed mapping will be necessary to show the structure. In the field it appeared that the rock was composed of irregular, angular and subangular fragments of volcanic rock in a finer-grained matrix. Occasional angular fragments of massive and laminated quartzite were also found.

The disintegration of the rock in the laboratory confirmed the observations made in the field. The rock was sufficiently friable to break down after standing in water for a few minutes, after which the sediment was graded and each grade examined separately. All grades were composed dominantly of angular to subangular grains and sub-rounded grains were the exception. The coarser grades were composed almost entirely of vesicular and amygdaloidal basalt and tachylyte, while the finer grades were similarly constituted with the addition of fragments of olivine, pyroxene, and the white mineral that fills the amygdules. An independent examination of the heavy minerals by Dr. A. W. Beasley proved the presence of basaltic minerals. Thus, there can be no doubt that the rocks are tuffs and breccias of pyroclastic origin. Fossils were not observed in the brief examination made in the field, nor was any sign of fossils seen in the rocks when studied in the laboratory. Thus the age of the sediments cannot be satisfactorily determined. The authors consider, however, that it is most unlikely to be "Permo-Carboniferous". The rock is very poorly lithified whereas all Permian rocks seen by the authors in Tasmania are well lithified and require very harsh treatment for their disintegration. On the other hand, the Circular Head rocks resemble closely the tuffs and breccias associated with the Tertiary basalt flows in Tasmania and Victoria, and so the authors prefer to regard them as Tertiary.



SKETCH SECTION THROUGH THE NUT, STANLEY

Fig. 3.

The basic igneous rock intrudes these sediments somewhat irregularly. In the quarry face on the south-east side of The Nut, the contact is concordant and steeply dipping to the north and north-west. On the shore platform to the north of The Nut, several dykes of basalt occur in the sediments being roughly at right angles to the inferred contact between the basalt and the sediments. In several of these dykes the basalt is seen to be vesicular and Edwards (p. 408) pointed out that the basalt just above the contact on the south-east side of The Nut is also vesicular. The vesicularity suggests that the basalt consolidated at the surface, or closer to it than envisaged by Edwards, while the contacts observed and the structure of the sediments as far as seen do not support the idea that The Nut is a laccolith. Rather do they suggest that it is the remnant of a volcanic neck intruded through tuffs, probably of Tertiary age. Further field work and mapping are necessary before this idea can be finally substantiated.

Doctor's Rocks, Wynyard

At Doctor's Rocks, east of Wynyard, a flow of basalt overlies the Permian Wynyard Tillite unconformably and passes below sea-level. This basalt shows no sign of pillow structure at either the lower or upper contact so that from available evidence it would seem to have been poured out onto the land surface. The basalt is overlain by some feet of "*Turritella* Limestone", as developed at Fossil Bluff, Wynyard and where the limestone overlies basalt the basal few inches contain basalt boulders. This limestone is in turn overlain by more basalt. The limestone is Oligocene (Janjukian), so approximately there is a pre-Oligocene basalt and a post-Oligocene basalt. The discovery of the limestone between the basalt flows was made by J. Loveday, C.S.I.R.O. Soils Division, and will be more fully described elsewhere.

Evandale.

Mr. K. R. von Steiglitz kindly conducted us to Rose Rivulet, Evandale, near Launceston. Clays, clayey sands, sand and ironstones outcrop in the banks of the creek. They are Tertiary in age and belong to the palaeogeographical Lake Tamar (Carey 1947). From this site came the specimens considered by H. H. Scott (1931, 1934) to be Cycadophytes. They were collected by Mr. von Steiglitz and Mr. E. O. G. Scott, so we were guided to the locality by one of the original collectors. One of us (E.D.G.) later examined Scott's specimens in detail and could not find justification for this determination, an opinion supported by Dr. Isabel Cookson (1953). Carbonaceous material from this site was kindly examined for us by Dr. Cookson, who recognized the following pollen forms:

Nothofagus (*brassii* type)
Nothofagus sp. *c.* Cookson
Nothofagus sp. *g.* Cookson
Banksiaedites spp.
Beaupreaidites verrucosus Cookson
Proteacidites cf. *crassus* Cookson
Proteacidites parvus Cookson type
Myrtacidites spp.
Myrtacidites parcus Cookson and Pike type
Microcachrydites antarcticus Cookson and Pike
Podocarpus several types
Dacrydiumites florinii Cookson and Pike
Trisaccites microperus Cookson and Pike

On present knowledge, the last-named sporomorph is pre-Yallournian in age. In spite of all the work done on the Yallourn brown coals, no *Trisaccites* has yet been found in them, whereas the sporomorph is common in the Eocene brown coals of the Otway Mountains (also in Victoria) which present a similar facies. *Trisaccites* is not known to exist later than the Eocene (or Lower Oligocene at most). It is found in the sub-Older Basalt deposits of the Snowy Mountains and Vegetable Creek in New South Wales, which are probably of similar age (Cookson and Pike 1954).

This dating is very significant, because it allows some of the faulting of the Launceston area to be dated. Carey (1947) showed that the sequence of events in the Launceston area was: dolerite intrusion, peneplanation with lateritization, faulting, deposition of sediments in lakes developed in the fault troughs and then eruption of basalts. Some of the lake sediments can now be dated as Eocene or Lower Oligocene so that the earlier faulting occurred in the Lower Tertiary. Faulting has displaced some of the lake beds, as seen in the excavations for the Trevallyn Power Station and it is likely that faulting continued during deposition. The faulting is not known to have displaced the basalt which overlies the lake sediments probably disconformably and the valley occupied by the basalt near Beauty Point has been cut by the Tamar Valley. The latter can be traced by examination of submarine contours to a depth of 125 feet below sea-level. The erosion of the valley to this depth is thought by Edwards (1941*a*) to have occurred during a period of low sea-level, correlated with the Mindel Glaciation. The basalt then is post-Lower Oligocene and pre-Middle Pleistocene. No closer estimate can yet be made. Cotton (1949, p. 293) doubted the antiquity of the faulting around the Launceston trough on geomorphological grounds and tended toward an Upper Tertiary age for them. If the argument based on *Trisaccites* is correct, however, much of the faulting must be Lower Tertiary, even older than the Lower Miocene age postulated by Carey (1947) and criticised by Cotton. The possibility of Upper Tertiary faulting cannot yet be ruled out but it is remote. The main scarp-forming faulting is probably Eocene in age.

Summary of Observations on the Tertiary System

In the Lower Tertiary (Lower Oligocene or before) faulting commenced to disrupt a lateralized peneplain in the Launceston area. Gravels, sands, clays and lignite with *Trisaccites* were deposited in a fault trough, with faulting continuing during deposition. The climate was apparently pluvial and perhaps warmer than at present. In the Wynyard districts basalt was poured out, probably before the Upper Oligocene, on to a land surface extending below present sea-level and basalt was possibly erupted in the Marrawah district before the Upper Oligocene. At Wynyard, the Lower Tertiary basalt was covered by marine Lower Miocene limestone and at Marrawah by marine limestones of Upper Oligocene to Lower or perhaps Middle Miocene age. Similar limestones to those at Marrawah occur also at Temma, Britton's Swamp and Irishtown up to heights of 250 feet above sea-level, probably marking extensive marine transgressions in the Miocene. Later the sea retreated to below its present level, the limestones were eroded to produce fairly wide valleys several hundreds of feet deep. Sands, gravels and lignites accumulated in these valleys as in the Lileah and Irishtown area. The limestones were deposited in a sea warmer than at present (as shown by the presence of *Lepidocyclina*) and the lignites indicate a pluvial climate, probably a little warmer than at present. Basalt flowed down these valleys cut in the limestone to below present sea-level. This seems to be the case at Marrawah, Britton's Swamp and Montagu, Irishtown and Circular Head and Wynyard. There were apparently

many eruptions of lava as Nye et al. (1934) recorded at least four, separated by sands and lignite at Irishtown, and the basalt of Green Hills flowed down a valley system cut in tuff from earlier eruptions. The volcanic neck of The Nut is later than the tuffs but its relationship to the flows of Green Hills is unknown. The age of the basalts at Launceston is not known with certainty but the limits are Lower Oligocene and Middle Pleistocene.

Quaternary System

PLEISTOCENE SERIES:

Christmas Hills

The road from Smithton to Marrawah passes over a slightly higher and much more sandy area of the Mowbray Swamp as it approaches the Christmas Hills. Where the road ascends from the Swamp to the higher country, cuttings reveal a formation of fine white sand. An instructive section can be seen in a quarry on a prominent bend one to three chains east of Marrawah 26 milepost (Aerial photo Smithton run 5, No. 30,786).

The sequence is as follows:

Top	1 ft.	mid-grey soil
	10 ft.	white sand (mostly clear quartz)
Bottom	6 ft. plus	of dark-brown carbonaceous sand.

The sand is very fine, well rounded, and well sorted. Both the white sand and the carbonaceous sand are cross-bedded (Plate 4, figs. 1-2), the latter having a persistent dip of 27° West and a meridional strike. The nature of the sand and the cross-bedding indicate that the materials were windblown. The carbonaceous sand lenses out at the east end of the quarry, but is still well developed where the outcrop is cut off at the west end 1½ chains away. It occurs also in the gutter of the road. Further up the hill, white sand occurs over the red clay which characterizes the plateau above. The red clay is derived from rocks of basaltic type.

Three periods of differing recent climatic conditions are suggested by the sands on the flanks of the Christmas Hills, viz.—

Pluvial	Formation of carbonaceous sand as seen in bottom of quarry.	Carbon rich.
Drier	Formation of white sand deposit.	Carbon poor.
Pluvial	Formation of present carbonaceous soil and thick forest growth.	Carbon rich.

Mr. G. D. Hubble, C.S.I.R.O. Division of Soils, has drawn our attention to the possibility that this section (and the one at Chequers Drain) is a giant podsol and not a series of layers produced by different climatic conditions.

The present average rainfall of the area varies at different localities from 34·92 ins. to 57·39 ins. per annum, the higher falls occuring in the higher parts of the country. Dr. Isabel Cookson examined the carbonaceous sand from the bottom of the quarry, and found the following pollen and spores:

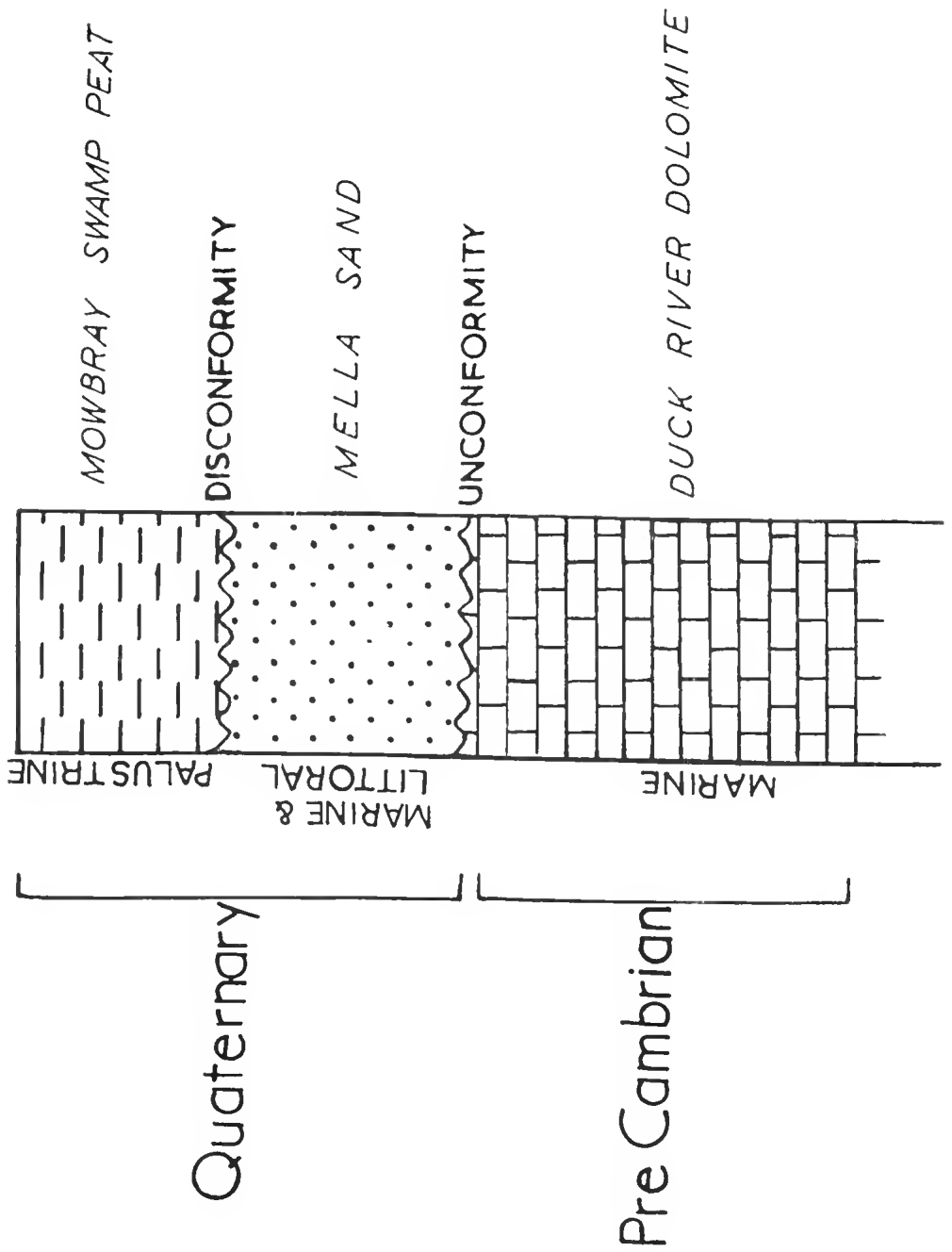
Myrtaceae
? *Podocarpus alpinus*
Compositae
Gramineae
cf. *Gleichenia*.

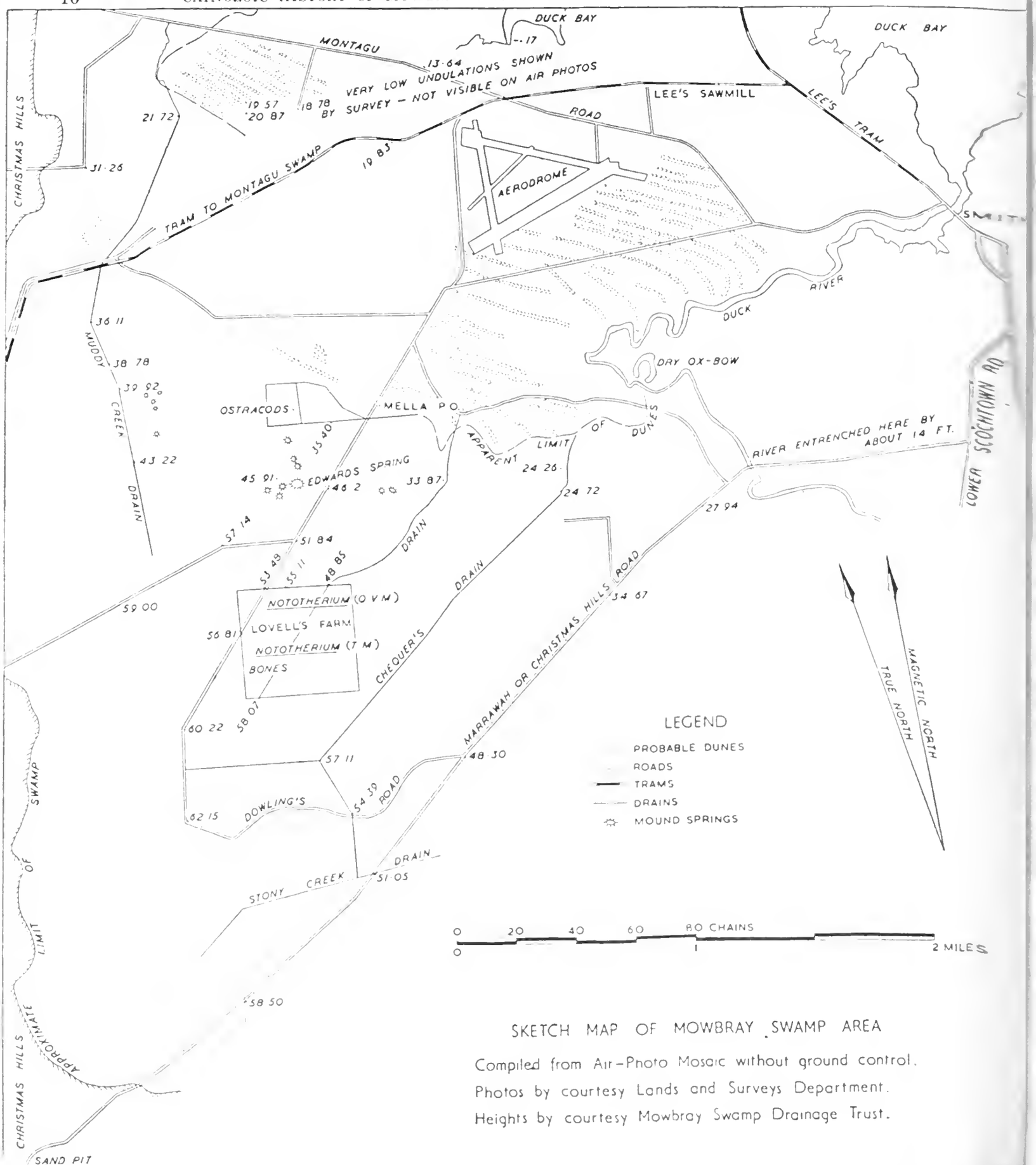
PLATE IV.

FIG. 1. Quarry on south side of Marrawah Road at Christmas Hills.
FIG. 2. Closer view of the polleniferous carbonaceous sand.

Nye, Finucane and Blake (1934) and Edwards (1941*a*) have commented on the sand deposits of the Christmas Hills in relation to the Duck River Plain. Our observations support the view that the present level of the plain is more or less the original one.

FIG. 4.





SKETCH MAP OF MOWBRAY SWAMP AREA

Compiled from Air-Photo Mosaic without ground control.
Photos by courtesy Lands and Surveys Department.
Heights by courtesy Mowbray Swamp Drainage Trust.

Mowbray Swamp

South and west of the town of Smithton is a lowland some six miles wide and extending twelve miles inland. On the east it is bordered by land of the order of 200 feet above the sea, consisting of folded Cambrian spilite and Precambrian silicified sandstones covered on the seaward part by sands and further inland by Tertiary basalt (Carey and Scott 1952). On the west, the lowland is bordered by similar high ground underlain by ?Cambrian argillite, greywacke and breccia, as may be seen, for example, in a quarry on the Montagu Road and by the coastal outcrops at Stony Point. The eastern side of the lowland is underlain by Precambrian dolomite, but what underlies the main part of the Mowbray Swamp is not known. The lowest bed of the Pleistocene Series so far found beneath the Mowbray Swamp is a sand—here called the Mella Sand and defined as a formation of sand of unknown thickness underlying the Mowbray Swamp Peat, exposed at Lovell's Farm, Mella. Nye, Finucane and Blake (1924) reported marine mollusca from Mowbray Swamp, probably from the Mella Sand. In the National Museum of Victoria, Melbourne, there is a collection made from Mowbray Swamp by Mr. L. R. East, consisting of the following:

Cardium racketti Donovan; a sand dweller, and still common along the coast;
Ostraea sinuata Lamarck; the rock oyster;
Panopea australis Sowerby; a mud dweller;
Mimachlamys asperrimus (Lamarck); a deep-water dweller.

These shells represent a mixture of facies, and so must have been washed together at their place of fossilization. On the farm of Mr. F. S. R. Shoobridge, in a drain 370 yards north-west of the Mella Road, opposite the Mella Post Office (see text-figure 5), casts of *Cardium* were found in peaty sand dug from the bottom of the drain about four feet from the surface. Reports of a number of other occurrences of sea-shells under the peat were received, but the shells were not seen. No evidence was seen of Pleistocene marine sediments on the high country east and west of the lowland. The sand constituting this formation may have been derived from the breakdown of the Precambrian Bryant Hill Quartzite as can be seen clearly in the White Hills, south-east of Smithton. A quarry south of the highway shows the rock to be leached for ten to twenty feet from the surface, freeing the sand; so much so that the ridge looks like a sand dune. This hill is not within the present drainage area of the Duck River, however, and if the present eastward set in Bass Strait was operative at the time of the high sea-level when this formation was deposited, sand from White Hills could not have been deposited in the former Duck Bay.

The marine part of the Mella Sand is overlain by a number of sand ridges, now occurring at Lovell's Farm House, Mella, and at other places in Mowbray Swamp as shown on the map, figure 5. The ridges are now low sand rises spaced 80 to 100 yards apart and trending in an E.S.E. direction probably parallel with the former shore lines. The ridges become progressively lower in elevation above the sea as the present shore line is approached. Mowbray Swamp is highest in the south-west where sand is accumulated in the lowland, and on the sides of the Christmas Hills. The ground here is about 64 feet above H.W.M. (as shown on the Drainage Board Map) but there may be a small depth of sand accumulated by wind action at the foot of Christmas Hills.

The most interesting formation is the Mowbray Swamp Peat. This is a formation of peat and some intercalated marl, usually less than 7 feet thick but except-

tionally over 15 feet thick, developed over most of Mowbray Swamp area, and containing fossils including *Nototherium*, *Palorchestes*, *Limnicythere*, &c. It is Upper Pleistocene in age.

Drain sections and ten spade and auger holes in the Mella District and south of Smithton proved peat from 1′ 6″ to 7′ deep. The only exception noted was a comparatively large cutting in the Chequer's Drain S.S.W. of Smithton (text figure 2; aerial photo Smithton run 7, no. 30,661, 6 cm. N. of centre point). The drain cuts through a ridge into the Duck River, and reveals:

Thin soil at surface with *Eucalyptus* and tea-tree;
4-5 ft. fairly loose white siliceous sand;
8 ft. 6 ins. compact carbonaceous sand measured to water level: the top of this bed is horizontal;
Seven ft. more of this bed was proved by auger, but further penetration was impossible owing to the compactness of the rock.

This carbonaceous bed is therefore at least 15 ft. 6 ins. thick; it is not stratified, but has horizontal depositional structures. The succesion here is a loose white sand overlying a compact carbonaceous sand, which is the same succession seen in the Christmas Hills (p. 13). The peat and peaty sand are found in the swales of the ancient sand ridges as shown by auger hole sections in different parts of the swamps such as are recorded a little later when dealing with the *Nototherium* occurrences.

The peat contains a rich fauna and some pollens and the species known to be present are listed below. Where they have been previously recorded, the literature references are given.

MAMMALIA

Nototherium tasmanicum Scott
Scott 1911, 1915, 1927, Scott and Harrisson 1911, Scott and Lord 1921*b*, 1922, 1923, 1924, 1925*a*, *b*, 1926, Noetling 1912*a*.

Nototherium mitchelli Owen
Scott and Lord 1921*a*, *b*, *c*, 1923, 1925*a*, *b*, Scott 1927.

Palorchestes cf. *azeal* Owen
Scott 1916, Scott and Lord 1925*b*.

Phascolonus sp.
Scott and Lord 1925*b*.

Vombatus sp.

Kangaroo

Wallabies

Rodent

AVES

Dromaius diemensis Le Souef
Scott 1932.

ARTHROPODA		
		Candona lutea King
	Chapman 1914.	
		Candonocypris candonoides (King)
	Determined by N. de B. Hornibrook.	
		Darwinula sp.
	Deevey 1955.	
		Limnicythere mowbrayensis Chapman
	Chapman 1914.	
MOLLUSCA		*Amphipeplea subaquatilis neglecta* Petterd
	Chapman 1914.	
		Assiminea tasmanica Woods
	Chapman 1914.	
		Bulimus dufresnii Leach (= *Caryodes dufresnii*)
	Noetling 1912*a*.	
		Bulimus tasmanicus Woods (= *Lenameria attenuata* (Sowerby))
	Chapman 1914 ?	
		Bythinella nigra (Quoy and Gaimard) (= *Austropyrgus nigrus*)
	Noetling 1912*a*, Chapman 1914.	
		Helix hamiltoni Cox (= *Stenacapha hamiltoni*)
	Noetling 1912*a*.	
		Pisidium tasmanicum Woods (= *Australpcea tasmanica*)
	Noetling 1912*a*, Chapman 1914.	
		Simlimnaea (formerly *limnaea*) *gunnii* (Tate)
		Sphaerium tasmanicum Woods
	Noetling 1912*a*, Chapman 1914.	
		Succinea australis Ferussac (= *Austrosuccinea australis*)
	Noetling 1912*a*.	
		Vitrina milligani Pfeiffer (= *Melavitrina milligani*)
	Noetling 1912*a*, Chapman 1914, Iredale 1933.	

PLANTAE

Dr. Isabel Cookson kindly made pollen analyses of samples from Mowbray Swamp and a sample of peat from between two and three feet at the radiocarbon sample site, near the locality which yielded the type specimen of *Nototherium tasmanicum* (Plates 1-2), four to five chains east of Lovell's farm house, Mella (text figure 5, loc. 2), gave the following results:

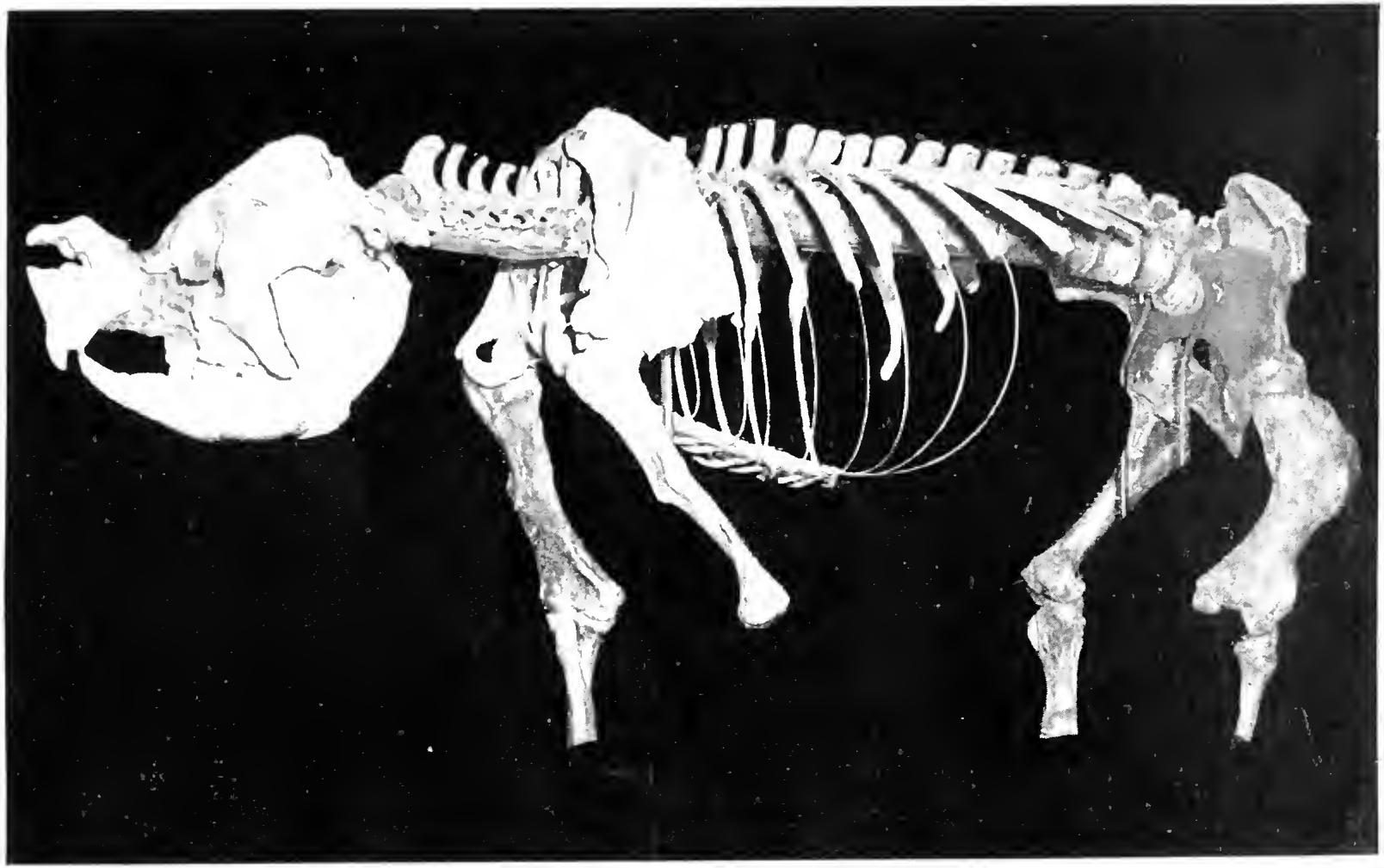
Eucalyptus sp.
Gramineae
Compositae, cf. Heliantheae
Other types not identified.
(Pollen content low).

Nototherium and Tasmania

Diprotodon, the largest marsupial known, has been found all over the Australian mainland but it did not reach Tasmania, as far as is known. It did reach King Island, however, which is in Bass Strait between the mainland and Tasmania (Keble 1945), apparently at the time of a eustatic low sea level in the Upper Pleistocene. In Tasmania itself there lived *Nototherium mitchelli* which is found also in King Island and in Victoria, but in addition there was in Tasmania the indigenous species *N. tasmanicum*. In the island of New Guinea there was likewise an indigenous species *N. watutense* (Anderson 1936, 1937). The nototheres are an ancient group going back at least to the Miocene (Gill 1953*b*), but all the above species are believed to be Pleistocene. So far, giant marsupials have been found only in the northern part of Tasmania.

Nototherium tasmanicum. Precise localities have not been published for the fossils of this species recorded from the Mowbray Swamp, but the writers were able to find local residents who witnessed the collection of certain specimens and could show exactly whence they came. The almost complete holotype skeleton (Plates 1-2) in the Queen Victoria Museum at Launceston (reg. no. 1760) with only the feet and a few other bones missing, came from Mr. E. C. Lovell's farm at Mella. 110 yards a little north of east of the house (Aerial photo 30,663, Smithton run 7, 3·9 cm. 8° N. of W. of C.P.). Mr. Lovell found the skeleton at a depth of five to six feet and excavated it himself. The locality is a T-shaped drain intersection. A spade excavation was made in the paddock beside this site to avoid the roots of trees lining the drain and peat was obtained from between 2 and 3 feet from the surface for radiocarbon analysis. Whitish sand was met at a depth of four feet (see text figure 5 for these sites). The surface of the ground here is approximately 55 feet above H.W.M. as estimated from the Drainage Board map. At the waterhole nearby (same aerial photo 3·3 cm. 6° N. of W. of C.P.), peat followed by sandy peat reaches a depth of seven feet. On the other hand, the Lovell home is on a sandy rise.

A less complete skeleton of *Nototherium mitchelli* was located by Mr. Lovell about a quarter of a mile S.S.W. of the Lovell home (locality 4; same aerial photo, 5 cm. S. of W. of C.P.). Mr. Lovell left this fossil for Mr. H. H. Scott of the Queen Victoria Museum to excavate. It is now in the Tasmanian Museum, Hobart. The drain from which this *Nototherium* came was six feet deep when excavated. Members of the Lovell family there at the time of the finding of the fossils, told us that all the fossil marsupial bones found on their property came from the *bottom* of the peat. In the Queen Victoria Museum is a piece of sandy peat "extracted from the brain case of *Nototherium tasmanicum*." The sand is a very fine well-rounded clear quartz sand. The peat nearer the surface has much less sand than this specimen. A few bones of *Nototherium tasmanicum* were found at



yet another locality on Lovell's farm, on the west boundary of the property at the intersection of two drains about 22 chains from the house (same aerial photo, 5·7 cm. 20° S. of W. of C.P.). The drain here was originally about seven feet deep and an auger hole sunk by the authors proved 6 ft. 3 ins. of peat and peaty sand. The surface of the ground here is calculated from the Drainage Board map to be about 56 feet above H.W.M. Mr. K. M. Harrisson obtained the bones from this site. A mutilated femur is now in the Tasmanian Museum, Hobart, while in the Queen Victoria Museum, Launceston, are three teeth (reg. no. 1763). A note by Mr. Scott in the Museum Register says that he re-excavated the site in September 1915, but found no further bones. Other nototherian remains in the Queen Victoria Museum are:

1. Two rami and tusks obtained from Mr. K. M. Harrisson in April 1924. See Scott and Lord 1925*b*.
2. Left cheek teeth and a coronoid process of a young *Nototherium*. Also other cheek teeth and tusks. Obtained from Mr. E. W. Reeman in 1924. See Scott and Lord 1925*b*.
3. "Two upper jaws and a box of various fragments" obtained from Mr. Burnley 14/3/49.

All the nototherian bones found in the Mowbray Swamp (apart from those in the mound springs) are various shades of brownish grey and grey, being stained presumably by the peat and probably such iron as is present being chemically reduced by the decomposing vegetable matter. That calcareous shells are preserved in excellent condition in some places, but dissolved by acids in others, shows a considerable range in pH conditions.

Articulated holotype skeleton of Nototherium tasmanicum. The articulated skeleton of *Nototherium mitchelli* obtained from Mowbray Swamp in 1920 and exhibited in the Tasmanian Museum, Hobart, has been figured, but not the more complete articulated skeleton in the Queen Victoria Museum, Launceston, which is the holotype of *Nototherium tasmanicum*. This is, therefore, now figured in Plates 1 and 2. The head is large, and remarkable for its strong nasal protuberance. *Diprotodon* has a similar protuberance, but not so strongly developed. The zygomatic arch is very strong and is sub-parallel to the main part of the cranium and not bowed. Like those in *Diprotodon* also are the curious scapulae and the rather flat humeri and femora. The tail is incomplete, but it can be seen that it was broad, flat, and rapidly tapering. The hind legs are markedly stronger than the forelegs and the pelvic girdle very powerful in build (cf. *Megatherium*). The animal apparently had the power of rising on its hind legs and this would increase the availability of food in the eucalypt forest of which the pollen analysis provides evidence. *Nototherium* was probably a browser rather than a grazer. Food would be plucked with the conical curved tusks and ground by the heavy molars. Such foot bones as are available show the animal was plantigrade. The feet are weak, as in *Diprotodon*, indicating a tendency for the foot bones to diminish and a pillar type leg to develop, as in the elephant. The skeleton of *Nototherium tasmanicum* and the other vertebrate fossils named in this paper need detailed study and taxonomic revision.

Palorchestes cf. *azael* was found by T. Edwards "in a drain in the Mowbray Swamp" and was acquired by Mr. H. H. Scott of the Queen Victoria Museum, who made this note; "Premaxillaries found by me, also zygoma, occiput, and scraps . . . During my visit to Smithton in 1915, I dug out the grave, with

Edwards, and found the nasals, incisor tooth, an occipital condyle, and other scraps." Scott (1916) described and figured a right upper maxillary with cheek teeth. He states that some nototherian teeth were also found by Mr. Edwards.

Phascolonus. The giant wombat is represented in Mowbray Swamp fauna by the shaft of a femur (reg. no. 1771) received by the Queen Victoria Museum on 8/10/12. It was represented by Hon. E. Mulcahy, M.L.C., and was found on "Wilson's Section". The records in the Museum also mention part of a zygoma. In 1934 a leg bone of a giant wombat from Mowbray Swamp was received through Mr. T. Edwards.

Vombatus. In 1944 a small wombat jaw preserved in lithified cave earth was received by the Queen Victoria Museum through "Mr. T. E. Burns, from cave, Smithton." It is inferred that this fossil is not from the swamp area, but from the higher ground bordering the swamp to the east.

Large Kangaroos, &c. Mr. H. H. Scott registered as number 1766 in the Queen Victoria Museum, the shaft of a femur "regarded as being *Sthenurus* or *Procoptodon*, found at Mowbray Swamp, Smithton, by Mr. F. V. Brumby . . . in 1915 . . . The central muscular tract is very large, but the rest of the evidence is in favour of immaturity. This is a lusty growing animal minus the super-ossification of the adult." Another parcel contained "parts of three wallabies, toe of a large kangaroo and bones of a small rodent, all per Mr. T. Edwards of Mowbray Swamp (with emu bones) 14th. Oct., 1924. All found in a waterblow." This group of bones is medium reddish-brown and lightly mineralized. They are oxidized, whereas those from the peat are always chemically reduced.

"*Dromaius diemenensis* Le Souef". In 1924 Mr. T. Edwards found a femur, two tarso-metatarsi, a cervical vertebra, and synsacrum of an emu in the Mowbray Swamp (reg. no. 1488). The preservation is similar to that of the *Nototherium* bones, viz. of dark colour, and with little if any mineralization. In crevices of the synsacrum some peaty material was noted containing fragments of freshwater shells. A fossil emu was discovered also during the draining operations at Irishtown in 1920 by Mr. E. H. Fenton (Scott 1924). The extinct Tasmanian emu was still in existence when white people arrived (Gunn 1853, Walker 1898, p. 22), but by 1832 it was extinct in the Derwent Valley (Backhouse 1843, pp. 30, 212). Scott (1932) recorded a fossil emu from Mole Creek in Northern Tasmania, west of Launceston. Near Mole Creek is Emu Plain, presumably named after those birds.

There are differences of opinion concerning what the taxonomic standing of the Tasmanian emu should be, i.e., whether it should constitute a species, a subspecies, or just a race. The R.A.O.U. Checklist (1926) makes the King Island emu a full species and the Tasmanian emus a variety of the mainland form. It might be anticipated that, if the emus on King Island between Victoria and Tasmania were isolated long enough to evolve a new species, the Tasmanian emus would likewise evolve and not remain a variety of the mainland species. Mathews (1910) provided interesting information on the Tasmanian emu and has more recently (1946) given its taxonomic standing as *Dromiceius novaehollandiae diemenensis* Le Souef.

On Mr. Shoobridge's farm at Mella (locality 7, Aerial photo 30,663, Smithton Run 7, about 9·2 cm. 6° W. of N. of C.P.) there is a somewhat circular patch

PLATE II. *Nototherium tasmanicum* Scott. Holotype from Mowbray Swamp and now in the Queen Victoria Museum, Launceston. Hind view.

of marl not exceeding eight chains in diameter. A spade hole put down by the writers proved the following succession:

2 ft. peat
2 ft. marl (rich in mollusca and with some ostracoda)
2 ft. peat
White sand of unknown depth.

Hydrogen sulphide was detected during the excavation. From the marl Miss Hope Macpherson kindly determined for us the following mollusca:

Australpera tasmanica (T. Woods)
Austropyrgus nigra (Quoy and Gaimard)
Lenameria attenuata (Sowerby)
Melavitrina milligani (Pfeiffer)
Simlimnaea gunni (Tate).

Melavitrina is a carnivorous land snail, so was probably washed into the pond or small lake at Mella. The marl has been dated as older than 37,600 years.

On the east side of the marl lenticle is an elongate patch of clay which seems to represent the bed of an incipient creek. The marl collected is similar to that of the Pulbeena Swamp, but no detailed work has been done on it yet. Analysis of a sample from Mella by Dr. A. W. Beasley gave:

Carbonates 92 per cent
Organic matter 3·3 per cent
Mineral matter 4·7 per cent.

The last-named consisted chiefly of well-rounded and sorted, very small grains of clear quartz, but some feldspar, muscovite, black iron ore, and other minerals were also present.

The same or similar ostracods to those found in Mowbray Swamp are found in the Tootgarook or Boneo Swamp in Victoria (Chapman 1919, Keble 1950, Gill 1953*d*) and in the Pyramid Valley Swamp in the South Island of New Zealand (Duff 1949, Hornibrook 1955, Deevey 1955). This distribution may well be due to birds. Cleland (1952) has shown how widely plants are distributed by birds in Australia and the same could well apply to ostracods. The Double Banded Dotterel (*Charadrius bicinctus* Jardine and Selby 1827) migrates between Australia and New Zealand (Stead 1932, Buddle 1951) and it may be responsible for the distribution of these arthropods. However, it is curious that the diatom florae as reported for New Zealand and S.E. Australia are not more alike.

Surface features in the Mowbray Swamp of considerable geological interest and pedological importance (see addendum on soils) are the spring mounds, or "blows" as they are called locally. These have been referred to by Noetling (1912*a*) and Nye, Finucane and Blake (1934), while Stephens (1913) has discussed the springs in the vicinity of Deep Creek. The sites of some of the mounds are shown in text-figure 5. They are usually between 10 and 20 feet high, with a low angle profile commonly between 5° and 10°. A typical well-developed mound spring is that on the farm of Mr. Ben Edwards at Mella (Aerial photo 30,663, Smithton run 7, 7·1 cm. 11° W. of N. of C.P.). Water used to issue from the top of the mound, causing swampy conditions round it, so a channel was cut in the north side to divert the water into a drain. The water is highly mineralized, issues at the rate of 600 gallons per minute (figure supplied by Mr. Edwards) and maintains a consistent temperature throughout the year of 66°F. Some of the water is utilized in a cowshed built on top of the mound (Plate 3, figure 2). The following section of the mound results from observations to a depth of 7 ft. 6 ins. in the channel draining the mound and this was continued down by auger to a depth of 11 ft. 3 ins. The beds have a low outward dip of approximately 3°.

PLATE III.

FIG. 1.—Aerial photo of Holocene sand ridges near the Black River. The road is the Bass Highway. Published by permission of the Surveyor General, Hobart.

FIG. 2.—Mound spring on Edward's farm at Mella. Near the shed on the left is the section described on page 25.

Surface.	3 ft. 0 ins.	Light-brown soil and "travertine"
	6 ins.	Light-grey calcareous layer with shells
	1 in.	Black peat
	2 ins.	Calcareous layer as above
	6 ins.	Black peat
	9 ins.	Light-grey calcareous layer
	6 ins.	Black peat
	½ in.	Whitish shell layer
	9 ins.	Black peat
	½ in.	Whitish shell layer
	7 ins.	Black peat
	7 ins.	Shelly peat (bottom of channel)
	8 ins.	Black peat with wood
	8 ins.	Whitish to cream shell layer
	8 ins.	Light-grey marly sand
	6 ins.	Creamy calcareous layer
	6 ins.	Dark brownish grey marl with shells
	9 ins.	Light-grey marl of calcareous material and shells
	11 ft. 3 ins.	Total depth.

From our observations, and the reports of farmers, it would appear that alternations of peat and calcareous matter are typical of the Mowbray Swamp spring mounds. The shells are small snail shells such as have been recorded by Noetling (1912*a*) and Chapman (1914) from the marly layers of the Swamp. The marl is often rich in a calcareous alga. We were informed that from this and other mounds on the property, marsupial bones had been recovered. The property was formerly owned by Mr. Burnley and it is noted that Scott and Lord (1924) recorded a mutilated *Nototherium* femur from Mr. Burnley's farm on the Mowbray Swamp. The register at the Queen Victoria Museum records that on 14/3/39 two upper jaws of *Nototherium* and various fragments were obtained "from Mr. Burnley, Smithton". Dr. Cookson noted *Banksia* sp., cf. *Gunnera* sp., *Haloragis* sp., cf. *Hypolaena*, Compositae cf. Heliantheae, Chenopodiaceae and Gramineae pollens from a peat sample from the mound spring section on Mr. Ben Edward's farm at Mella. She did not find coniferous or fern pollens.

The age of Mowbray Swamp was given by Noetling (1914) and David and Browne (1950, p. 616) as Holocene. The present investigation shows that the Duck Bay Sand must have been deposited when the sea was about 70 feet higher than at present when the Rocky Cape Caves (see later) were being cut, or as it retreated. A sea-level at this height is elsewhere dated as Upper Pleistocene, so that this would be the maximum age for the Duck Bay Sand. The fossil shells found in the sand up to 50 feet above present sea-level are all living species and provide no accurate dating. However, all the sand ridges on the swamp antedate the present set which began to form when the sea-level retreated from a stand ten feet above that at present. Thus the Duck Bay Sand and Mowbray Swamp Peat are Upper Pleistocene, not Holocene. This conclusion is in keeping with radiocarbon datings received since the larger part of the paper was written, viz.—

Marl from 2 feet below surface, Shoobridge's farm, Mella (p. 25) > 37,760 years

Peat from 2 to 4 feet below surface, Lovell's farm, Mella (site of holotype of *Nototherium tasmanicum*) > 37,760 years.

These radiocarbon dates also indicate an Upper Pleistocene, not Holocene age.

Three lines of evidence combine to provide a picture of the conditions obtaining when the Mowbray Swamp was being formed:

1. It has already been noted that the peat was laid down chiefly in swales between ancient sand ridges and that the fossil vertebrates were generally found at the *base* of the peat. The evidence of the fossil vertebrates may therefore be taken to apply particularly to the earlier part of the period of peat formation. The fauna included herds of giants like *Nototherium*, *Palorchestes*, and *Phascolonus;* emus were also present. These mammals and birds could not possibly live in the jungle found on the Mowbray Swamp before it was cleared. We are informed by people who helped open up the district that no ground vertebrates were living there when white men came. The giant marsupials would need a good supply of vegetation for food but also space in which to move their huge bodies freely. Moreover, *Palorchestes* was a grassland type of kangaroo (Gregory, 1951, pl. 181) and would need at least an open forest type of environment. The same ecological argument applies to the emus.
2. Calcareous layers rich in freshwater molluscs, ostracods and algae occur as lenses in the peat. The evidence from these beds therefore applies particularly to the *middle* of the period of peat formation. These beds were packed with dense plant growth when in their natural condition just before clearing but at the time of their formation they must have been open sheets of water. For example, two feet thickness of 92 per cent calcium carbonate, free of peat, could not accumulate except under open water conditions. Some of the mollusca are lacustrine species. Ready access of light was necessary to grow algae and to provide the food for the ostracods and molluscs.
3. The palynological evidence is derived from peat about half way through the available thickness on Lovell's farm at Mella (loc. 2) and the peat of the mound spring deposit on Edward's farm at Mella (loc. 6) and so applies chiefly to the *middle and later* parts of the period of peat formation. In that the pollen grains are of Myrtaceae, *Banksia*, grasses, chenopods, composites and such like, an open forest association is indicated. Probably *Nototherium* browsed on the Myrtaceae chiefly, while *Palorchestes* grazed mainly on the grasses.

Thus, all three lines of evidence indicate a climate damp enough to cause peat formation, to form small lakes and to provide a flora rich enough to meet the needs of the herds of giant marsupials. On the other hand, it was dry enough to develop an open forest (not a wet forest) and so contrasts with the conditions prevailing at present. A period drier than the present in the Pleistocene of Tasmania would probably be an interglacial.

Scotchtown Cave

In order to provide limestone for the paper mills at Burnie, a quarry was opened in the Duck River Dolomite on the east side of the Scotchtown Road 3·2 miles south of Smithton. In 1942 a cave was revealed in this quarry with an average depth of two feet of chocolate-coloured cave earth. Bones at the surface were crumbly, but inside the cave earth numerous bones were well preserved. Mr. E. O. G. Scott made a collection of the bones and these are now in the Queen Victoria Museum at Launceston. These are creamy in colour and mineralized.

Scott reported finding giant kangaroos, bandicoots, small birds, *Nototherium tasmanicum*, *Thylacoleo carnifex*, *Tachyglossus*, *Vombatus*, the extinct Tasmanian emu and a reptile. Bones examined by one of us (E.D.G.) at the Queen Victoria Museum included:

Nototherium
Thylacoleo (the first record of this genus from Tasmania; see Gill, 1954*a*)
Palorchestes
Sthenurus
Macropus aff. *titan*
Wallaby
Vombatus
Sarcophilus (giant form; see Gill 1953*c*)
Thylacinus (large form but within the present size range; see Gill 1953*c*).

In the Queen Victoria Museum there is also a number of boxes of small bones, but there was not time to examine these. The Scotchtown Cave was probably a carnivore's lair.

Pulbeena Swamp

On the east side of Mowbray Swamp is a ridge of ?Cambrian bedrock. East of this ridge (which is half a mile to a mile across) is another swamp called the Pulbeena Swamp. Between Pulbeena Railway Station and the gantry at Fenton's Limestone Quarry on the east side of the railway line north-west of the station, there is a deep drain with floor 205 ft. above S.L. (Aerial Photo Smithton run 6, no. 30,686, 4·3 cm. W. of C.P.), shown on the map in Nye, Finucane and Blake (1934). The drain section reveals.

Surface of ground.	1 ft.	5 ins.	Yellow algal marl with peaty bands.	
	1 ft.	2 ins.	Black peat.	13,520 ± 540 years.
		4 ins.	Whitish marl with numerous shells.	
		10 ins.	Peaty marl.	
Floor of drain.	1 ft.	9 ins.	Whitish marl.	28,190 + 1,520 years.
Auger hole.		6 ins.	Black peat.	
	2 ft.	0 ins.	Whitish marl.	

"Marl" is used in the sense of Pettijohn (1949). A smell of hydrogen sulphide emanated from the auger hole while it was being worked. On the surface of the spoil heaps consisting of material removed during the making of the drain, a shiny black jet-like substance was noted. Dr. J. A. Dulhunty has informed us that this is due to drying out on the surface and possibly also surface oxidation. "The irreversible changes from the soft-dull to the hard-bright conditions occur when absorbed water is removed from a colloid structure in which the micelles are just touching with contact points. The change is due to plastic deformation of the micelles on release of internal pressure of absorbed water. This produces contact areas instead of contact points between the micelles. The corresponding increase in the cohesive force is such that the micelles cannot be moved apart when water is reabsorbed on wetting. Thus the change is irreversible. If the peat has not reached the critical stage in colloidal development at which the micelles are just touching, then the change does not occur on drying." The same phenomenon was noted on the Mowbray Swamp.

Fenton's Quarry, north-west of Pulbeena Railway Station, reveals 3 to 8 feet of freshwater marl (Aerial photo Smithton run 6, no. 30,686, 4·8 cm. W.N.W. of C.P.). The following succession was determined:

Surface of ground.	1 ft.	0 ins.	Light grey marl with mostly minute shells. Algal remains present.
		8 ins.	Light yellow algal marl.
		2 ins.	Black peat. (?= peat near base of drain section).
Floor of quarry.	2 ft.	0 ins.	Light yellow algal marl to calcilutite, with freshwater gasteropods.
Auger hole.	3 ft.	3 ins.	Continuation of same bed.
	1 ft.	3 ins.	Dark grey peaty sand.
	1 ft.	0 ins.	Light yellowish grey quartz sand with calcareous material.
		6 ins.	Dark grey peaty sand.
	1 ft.	0 ins.	Chocolate brown peaty sand.
Total thickness	10 ft.	10 ins.	

The quarry is L-shaped, extending about four chains in each of the two directions. The beds exposed therein can be traced right round the quarry walls, although with some variation in thickness, e.g., the peat varies from 2 to 6 inches. There are some slight undulations which are probably due to differential compaction but otherwise the strata are horizontal. The amount of sediment from beyond the former lake waters was small, most of the material being of organic origin. The deposits indicate freshwater lacustrine conditions and imply a pluvial period. The vast tonnage of calcic materials in the Mowbray and Pulbeena swamplands has its origin in the underlying dolomite of the bedrock. The Mowbray Swamp deposits were laid down in swamps occupying swales, plus an occasional small lake. The peat is thus much more sandy than at Pulbeena. The Pulbeena Swamp deposits were laid down in a lake and as a result have a much higher percentage of calcic deposits, which are of both animal and plant origin. A detailed study of these deposits is now needed.

Being interested in the occurrence of *Limnicythere* in the moa swamp at Pyramid Valley in the South Island of New Zealand (Duff 1949), N. de B. Hornibrook of the N.Z. Geological Survey requested material for comparison. After restudying Chapman's types from Mowbray Swamp (Hornibrook 1953), samples obtained by us from Mowbray Swamp and Pulbeena Swamp were examined. The only sample providing ostracods satisfactory for his purpose was from Fenton's Quarry which yielded:

Candona lutea King
Ilyodromus stanleyanus (King)
Limnicythere mowbrayensis Chapman

See Hornibrook 1953, 1955.

Samples for radiocarbon analysis were taken from the north wall of the drain just east of the railway line and submitted to Dr. E. S. Deevey. Their C14 ages are:

Peat	2 ft to 2 ft. 7 ins. from surface	13,520 ± 540 years
Marl	5 ft. 6 ins. from surface	28,190 ± 1,520 years.

PLATE V.

FIG. 1. Entrance to Northern Cave, Rocky Cape, 70 feet above ocean level. The floor of the cave is covered with aboriginal midden.

FIG. 2. Fish bones from stratified layer of the Southern Cave, Rocky Cape.

FIG. 3. Bone "awl" made from the fibula of a kangaroo. From fish bone layer, Southern Cave, Rocky Cape.

FIG. 4. Reverse side of implement shown in fig. 3.

The first date is believed to be the true date, or near it, but the possibility of some contamination by the roots of plants living at the surface after the material concerned was laid down has always to be borne in mind. Such a C14 date is a minimum date. The Pulbeena peat date indicates an early Cary age (cf. Horberg 1955). The second date based on the marl may be affected by the shells and calcareous algae that form the deposit taking up "dead" carbonate from the underlying Precambrian dolomite. Deevey (1954) obtained spurious C14 dates of up to 2,000 years for plants living in a hard water lake. It is quite possible, therefore, that the given age of the marl is greater than that of the peat, partly because of greater antiquity and partly because of incorporation of non-radioactive carbonate from the bedrock. It is hoped later to make radiocarbon analyses of the whole series of alternating peats and marls of the Pulbeena Swamp deposits, thus making it possible to (*a*) compare and contrast the peat and marl calendars and (*b*) determine the rate of formation of the swamp deposits.

Comparison of C14 datings for the Mowbray and Pulbeena Swamps shows that the former is older than the latter. The Mowbray Swamp dates are older than the present range of radiocarbon. The Mowbray Swamp Peat was laid down in swales between sand ridges while the Pulbeena deposits were laid down in a lake. The former were laid down at a time less pluvial than the present, as is shown by the pollen analysis. The latter were laid down in a time as pluvial or wetter than the present. Some difference in age is therefore to be expected.

Rocky Cape Caves

On the east side of Rocky Cape (Aerial photo Smithton run 7, no. 30,627), there are two caves (Stephens 1908, Noetling 1912*b*, p. 103, Crowther 1925, Pulleine 1929, Edwards 1941*a*, Meston 1949), a more northerly one facing west, and a more southerly one facing east. In this paper they will be referred to as the Northern Cave and the Southern Cave respectively. They are cut from ? Precambrian quartzites of high dip (Plate 5, fig. 1), presumably by the sea. The two caves are at similar heights above the sea. A survey was made from the rocky floor at the entrance to the Northern Cave down to the sea, and the floor was found to be 75 feet above low water. Stearns (1935, p. 1939) and many others have provided evidence of a eustatic higher level of the sea of the order of 70 feet above the present level.

HOLOCENE SERIES (late Pleistocene at oldest)

Quarternary Deposits at Mount Cameron West

On the coast, both north and south of Mt. Cameron West, are ancient bays infilled with calcareous sand (Pl. 6, fig. 1) which rests on the Tertiary marine limestone and abuts against the basalt of the "mountain". Our visit was in winter after a storm, so that scour was at a maximum and screening by wind-blown sand at a minimum. Numerous aboriginal kitchen middens were noted in these sands. The dunes for one and a quarter miles south of Mount Cameron West were searched for the emerged marine shell beds of Quaternary age reported from there (Edwards 1941*a*) but only middens and redeposited midden shells (recognized by being of edible kinds and sizes with some burnt) were found. Shells had been washed from middens by rain and spring waters and redeposited so as to simulate stratified marine shell beds (cf. Gill 1951). It is, of course, possible that emerged marine shell beds occur in this area, but on the occasion of our visit the only beds seen by us of Quaternary age were those described above.

About a mile south of Mt. Cameron West, a section of the dunes exposed by erosion revealed three prominent soil horizons (Plate 6, fig. 2). An aboriginal midden was associated with the lowest, and therefore oldest, of the series of soils. This midden is considered to be historically ancient but geologically recent. The shells in the middens and redeposited beds were chiefly:

Dicathais textiliosa (Lamarck)
Haliotis ruber Leach
Patellanax squamifera (Reeve)
Scutus antipodes Montfort
Subninella undulata (Solander).

These are all molluscs that live on rocks, and so are quite out of character with this sandy environment. The aborigines probably collected them from the basaltic rocks round Mt. Cameron West, and took them to the shelter of the sand dunes to cook and eat them.

On the west side of Mt. Cameron West is a cobble beach which continues up as grassy slopes to a low vertical cliff whose base is of the order of ten feet above present sea-level. At the top of the low cliff is a well-developed terrace cut in the basalt and this is of the order of 25 feet above sea-level. There was not time to make accurate measurements and the tidal range is not known, but these two levels appear to be the work of eustatically higher sea-levels.

The Queen Victoria Museum at Launceston has a large piece of calcareous sandstone from two miles north of Mount Cameron West in which are preserved aboriginal carvings (Meston 1933, Nye 1941, Luckman 1951). Examination of the rock showed it to be an aeolianite (fossil dune rock). Mr. A. C. Collins kindly examined the foraminifera in a sample of this rock and found them to be of Quaternary age. They include *Lagena acuticosta ramulosa* Chapman and *Uvigerina bassensis* Parr, both typical recent Bass Strait forms.

Duck River and Duck Bay

The Duck River flows northward on the eastern margin of Mowbray Swamp, following the edge of the swamp deposits. It has incised its channel 15 to 20 feet. Duck Bay, into which it runs, is shallow with wide sand banks but with muddy sediments in places and rock outcrops on the floor of the bay. A survey chart and aerial photo mosaic kindly lent to us by the Smithton Harbour Trust show that the Duck River channel is only 3½ to 7 feet below M.L.W.S. at Smithton, but between Sampson Point and Perkins Bay the channel suddenly deepens from 8½ to 25 feet. Between Perkins Island and the point opposite, the depth of water reaches 31½ feet and this is on rock, presumably the Duck River Dolomite or perhaps basalt.

The low water datum in Smithton Harbour is the same as that of the Ulverstone tide-gauge, which is about a foot higher than the Devonport gauge. The spring tidal rise in the Harbour is about nine feet. The aerial photo mosaic shows that on Perkins Island and contiguous parts of the coast, the same series of recent sand ridges occurs as is described a little later from the vicinity of the Black River further east. It also shows that a delta, largely of sand (judging from its light colour) has been deposited where the Duck River debouches into Perkins Bay. Both the channel and the sediments are deflected somewhat to the east, as are those of the Black River and Detention River further east. This shows a "set" in Bass Strait towards the east in this area. The Australian Pilot (vol. 2, p. 7) states, "In the bight of the north of Tasmania . . . there is an almost constant current setting eastward during the greater part of the year."

PLATE VI.

FIG. 1. View looking south from the summit of Mount Cameron West (basalt), showing Quaternary sands filling old embayment.

FIG. 2. Natural section of a dune in the sandy area shown in fig. 1. Three soil layers can be recognized. An aboriginal midden is associated with the lowest layer.

Holocene Series of Sand Ridges

It is useful to distinguish between coastal *sand dunes* (generally 50 to 100 feet high and perpendicular to the direction of the prevailing winds by which they are built) and *sand ridges* (generally 10 to 20 feet high and following the coast whatever its direction) (Gill 1948, p. 10). The structures now discussed are sand ridges in this sense.

From the aerial photos available (none for the coast in the Smithton area had been taken at the time of the survey), it was noted that the series of sand ridges lining the present coast are well developed between the Bass Highway (which follows their landward margin) and the sea, three quarters of a mile to one and a half miles south-east of the Black River. A survey was made across the sand ridges at right angles to the beach, beginning a little west of the corner on the highway shown on aerial photo 30641, Smithton 7, 3·5 cm. N. of C.P. Behind the sand ridges is a flat swampy area with a small meandering creek which runs into a lagoon near the mouth of the Black River. Behind the swamp is what appears to be an old shoreline, approximately parallel to the present coast. The surveyed section is given in text figure 6 which shows a series of 18 ridges, all of which can be seen to be well developed longitudinally in the aerial photo (Plate 3, fig. 1). The ridges are protected by *Eucalyptus* trees and smaller plants. A good deal of burning off and land clearance has taken place and the sand is beginning to become mobile near the beach. The ridges are comparatively sharp and turn in to the mouth of the Black River. Their physiographic completeness suggests a recent geological age, as also does their relationship to the present coast and the existing river mouth. Only where there is a plentiful supply of sand are the ridges prominent, for they curve off and die out on approach to a rocky shore. In the area studied, their direction varies a good deal, but direction does not vary their character. They are known from other parts of the north coast of Tasmania. Similar well-developed series of recent sand ridges have been described from South Australia (Sprigg 1952) and New South Wales (Burges and Drover 1953).

Although, as one would expect, there is some variation from place to place, three phases of sand ridge building can be recognized in the area studied (see text-figure 6). Sand ridges are built at or near high water and the survey indicates that there has been a fall of sea-level of the order of ten feet. Teichert (1950), Fairbridge (1950) and Gill (1953*a*, 1955*a*) have found evidence in Australia (as others have overseas) of a retreat of the sea from a mid-Holocene level of the order of ten feet above the present. The authors quoted have found indications that this retreat took place in three stages, with stillstands at about five feet and two feet. To equate the three stages of sand ridge building with the three stages of marine retreat is, of course, unwarranted on the slender evidence available, but it may be advantageous to keep the possibility in mind. The ten foot sea level was associated with the postglacial thermal maximum (Gill 1955*a*), which was round about 5,000 years ago. Mehldahl (1950) refers to tidal forces in the sun's corona with a period of 308·52 years. If each sand ridge represents one of these cycles, then the sand ridge series represents 5,553 years. This is another intriguing parallel without any proved connection.

Ancient Series of Sand Ridges

Behind the Holocene series of sand ridges on Perkins Island is a more ancient series whose inland limit is shown in text-figure 4 by the line marked "apparent limit of dunes." They contrast with the recent ridges in that:

1. They are further inland and higher above present sea-level.
2. They are not sharp like the recent ridges, but depressed.
3. They are spaced further apart. Whereas the recent ridges average one for every 25 yards, the ancient ridges average one for every 80 to 100 yards.

   The recent ridges have a ratio of 1 : 3 or 4 with the ancient ridges in size and in frequency per unit distance.
4. There are more of them. Being less distinct, it is difficult to count them precisely, but about 40 can be made out or are suggested by the aerial photos.

Further inland again is a third area typified by the country around Mella, where sand ridges are not readily discerned either on the ground or from the aerial photos but are revealed by excavation or by the natural vegetation. The original vegetation reflected the difference between the sandy ridges and the peaty swales. Mr. F. S. R. Shoobridge of Mella advised us that the sand ridges were occupied chiefly by eucalypts with paperbarks, low tea-tree, a few blackwoods, clematis vines, and heath on the higher parts. The peaty areas were occupied by a dense forest of large paperbarks and blackwoods, a few eucalypts, and myrtle (*Nothofagus*) with low tea-tree and clematis. Mr. H. D. Ingle kindly examined pieces of wood collected by us from the peat of Mowbray Swamp at Mella and recognized them as roots of tea-tree, probably paperbark. They appear to represent the flora growing on the peat after its formation and not the flora forming the peat.

Middens in Rocky Cape Caves

Covering the floor of the Northern Cave and filling adjoining crevices is a copious deposit of charcoal, marine shells and the bones of marsupials, seals, and birds. The site is an aboriginal feasting place. It is said that the natives did not like dark caves, but they apparently appreciated the shelter of open caves such as those at Rocky Cape. Miss Hope Macpherson, Curator of Molluscs at the National Museum of Victoria, kindly determined the molluscs as follows:

Cellana rubraurantiaca (Blainville)
Dicathais textiliosa (Lamarck)
Fasciolaria australasia (Perry)
Floracouus anemone (Lamarck)
Haliotis ruber Leach
Mytilus planulatus Lamarck
Sabia conica Schumacher = *S. australis* (Quoy and Gaimard)
Scutus antipodes Montfort
Subninella undulata (Solander)

The marine shells are similar to those found in the Southern Cave but have a lower percentage of *Subninella* and a higher percentage of *Haliotis*. The bones include those of the Tasmanian Devil (*Sarcophilus*). Seal bones are numerous here but rare in the Southern Cave. As the Northern Cave is nearer the open sea, it is not surprising to find more *Haliotis* and seals in the midden remains.

The Southern Cave has an even greater thickness of midden material in it, determined by Meston (1949) as "just over fifteen feet deep". The midden consists of charcoal, bones, and the following shells:

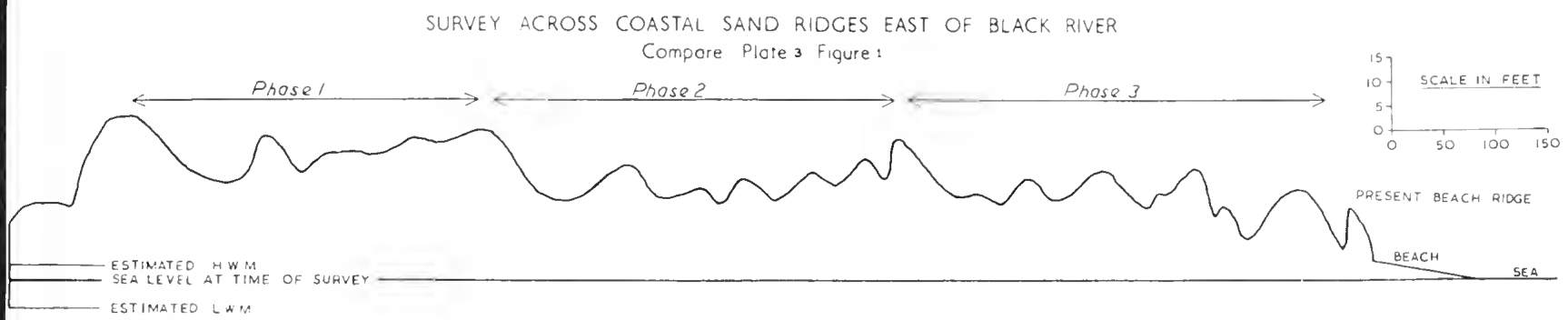

SURVEY ACROSS COASTAL SAND RIDGES EAST OF BLACK RIVER
Compare Plate 3 Figure 1
Phase 1
Phase 2
Phase 3
15
10
5
0
SCALE IN FEET
0
50
100
150
PRESENT BEACH RIDGE
BEACH
SEA
ESTIMATED H W M
SEA LEVEL AT TIME OF SURVEY
ESTIMATED L W M

FIG. 6.

MOLLUSCA

Austrocochlea adelaideae (Philippi)
A. camerata (Wood)
A. obtusa (Dillwyn)
Bembicium nanum (Lamarck)
Cellana rubraurantiaca (Blainville)
Cominella lineolata (Lamarck)
Dicathais textiliosa (Lamarck)
Fasciolaria australasia (Perry)
Haliotis ruber Leach
Mytilus planulatus Lamarck
Ostrea sinuata Lamarck
Poneroplax constata (Blainville)
Sabia conica Schumacher *S. australis* (Quoy and Gaimard)
Scutus antipodes Montfort
Siphonaria diemenensis Quoy and Gaimard
Subninella undulata (Solander)

BARNACLE

Tetraclita purpurascens (Wood)

The *Subninella*, *Cellana*, and *Haliotis* are the commonest but the *Dicathais* is also common, while *Scutus* and *Austrocochlea* are not uncommon. The deposit also includes bones of marsupials, birds and fish, numerous quartzite flakes and beach pebbles, which the aborigines probably used as hammer stones.

Fish bones in Midden

Where the midden deposits were undisturbed, some ten feet inside the cave, an excavation was made to a depth of three feet. From 18 inches to 2 feet, a layer was found richer in shells and bones and the latter included numerous bones of the parrot fish (kindly determined by Mr. Gilbert Whitley of the Australian Museum). See plate 5, figure 2. It has been claimed that no Tasmanian aborigines ate fish but this idea seems to rest chiefly on a statement by Captain Cook that the natives refused fish he offered them. West (1852) described an occasion when the Tasmanian aborigines "left their huts . . . in which were fragments of fish, baskets, and spears." Pulleine (1929, p. 147) found a parrot fish jaw at Rocky Cape; and he refers to "what appears to be representations of a fish" in aboriginal carvings (p. 149). Brough Smyth (1878, p. 392) said that the Tasmanian natives of the West Coast "speared sea fish in shallow water." Mr. Whitley said that if they were quick enough they could catch parrot fish by hand amongst the kelp, whence they would seek such molluscs as *Haliotis*. The plentiful fish bones from the Rocky Cape Cave indicate that some Tasmanian natives took fish there, presumably to eat. It could be that some tribes ate fish and some did not. Brough Smyth (1878, p. 393) said, "Certain kinds of food were prohibited, but under what regulations is not known . . . One set would not eat scaled fish." This suggests that some ate fish, while others did not. That natives refused fish offered to them by Captain Cook does not prove that even that group did not eat fish. They may have feared or suspected the strangers, or the fish may have been caught in deeper water and so be species unknown to the natives. That fish bones occur so seldom in Tasmanian coastal middens is also no argument that the Tasmanian natives did not eat fish. Victorian coastal aborigines ate sea fish, but in the hundreds of middens examined by one of us (E.D.G.), in only one were fish bones found, viz., the midden at Armstrong's Bay, Western Victoria (Gill 1951).

Bone Implement

The excavation in the Southern Cave at Rocky Cape also yielded a sharply pointed bone implement, like an awl, manufactured from the fibula of a kangaroo (Plate 5, figs. 3-4). The implement is reg. no. 48,237 in the National Museum of Victoria, and its measurements are as follows:

Greatest length as preserved	5·15 cm.
Greatest width	0·90 cm.
Greatest thickness	0·30 cm.

The markings on the point suggest that it was made by scraping and not by grinding as were so many Australian aboriginal bone implements. Noetling (1912*b*), working with T. Stephens at Rocky Cape, found spatulate ended pieces of fibulae in one of the caves (cf. Crowther 1925) hut he did not believe they were implements. Lord (1926, p. 459) quoted as Captain Cook's account a statement that "one party of natives met with were armed with lances about two feet long, terminating with a shark's tooth or a piece of bone sharpened to a point." As this statement might have a bearing on the implement from Rocky Cape, we asked the Research Section of the Public Library of Victoria under the charge of Mr. P. Garrett to check this quotation. Miss P. Reynolds discovered that this quotation is not from Captain Cook's official log, but from Anderson's (1784) version "written in a more pleasing and elegant Stile". The official log (Admiralty 1784) referred to "a stick about two feet long and pointed at one end." The embellishment of the bone points appears to have heen taken over from the account of the visit to Botany Bay in April-May 1770. So there is no evidence that sharpened bone points were used by the Tasmanian aborigines for tipping weapons. Other bone implements of this kind have been found in Tasmania, and the most likely explanation is that they were used as awls (Meston 1949, p. 149). The natives did not usually wear clothes, hut "when sick eovered themselves with a rug made of the skin of the opossum and of the kangaroo. The possum skins were laced together with sinews of the tail of the kangaroo." (Brough Smyth 1878, p. 399). Captain Cook's log (Admiralty 1784) also referred to females who "wore a kangaroo skin (in the same shape as it came from the animal) tied over the shoulders, and round the waist. But its only use seemed to be to support their children when carried on their backs." The manufacture of these items of clothing could be one use for bone awls.

In the Tasmanian Museum in Hobart, there are four Tasmanian aboriginal bone implements, one six inches long, and three eight inches long approximately. They all have spatulate ends. One of us (E.D.G.) found another pointed bone implement in a fissure deposit in limestone at Flowery Gully, north-west of Launceston. This implement is reg. no. 49,246 in the National Museum of Victoria, and its measurements are as follows:

Greatest length as preserved	4·4 cm.
Greatest width	1·35 cm.
Greatest thickness	0·55 cm.

Summary of observations on the Quaternary System

During the Pleistocene the Duck River cut a plains tract above the local base level formed by the rock bar at Perkins Island. Probably the plain was mostly cut in the soluble Duck River Dolomite, and was bounded to the west by low hills of Cambrian? argillite and greywaeke, and to the east by steeper hills of dolomite and Cambrian spilite. When the sea rose to the 70-foot level, it flooded this plain and sand was deposited on its floor. As the sea retreated, sand ridges

were left on the emerged coastal plain. During a period drier than the present, peat accumulated in the swales between the sand ridges and an open forest association constituted the flora. Giant marsupials inhabited the open glades. Possibly mound springs were already active, producing locally boggy conditions in which some of the animals were trapped. In places ponds and small lakes developed in which freshwater molluscs and ostracods thrived.

Later, in a time of higher rainfall, a lake at Pulbeena supported a rich growth of algae, molluscs and ostracods. In recent times (thought to be mid-Holocene), the sea stood about ten feet higher than at present, producing beaches and shore platforms now emerged. As the sea retreated, sand ridges were formed on Perkins Island, in the vicinity of the Black River, and elsewhere. Sometimes during the Upper Pleistocene or Holocene the Tasmanian aborigines arrived in Tasmania. Carvings and middens occur near Mt. Cameron West, and middens in the caves at Rocky Cape. Evidence occurs in the latter to show that at least some Tasmanian aborigines ate fish, and used bone as well as stone implements.

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ADDENDUM

THE SOILS OF MOWBRAY SWAMP AREA, TASMANIA

By G. D. Hubble, C.S.I.R.O. Division of Soils

The most important single factor in the genesis of the soils has been the influence of the alkaline spring waters (containing much soluble matter, particularly Ca and Mg) which have been ponded in the swamp and have irrigated the soils, enhancing their nutrient status and preventing the development of extreme acidity.

The main peat type—the granular peat as at Mella—was mapped as being more than 42 in. thick and was generally more than 6 ft. thick. This is a brownish black well-humified eutrophic peat with a deep horizon of brown well-decomposed peat of fine felty structure resting on sands below. A layer of calcareous peaty mud containing small mollusc shells often occurs (at varying depths) in the subsoil. Half a dozen transitional peat soils were recognized, one being a shallow peat over sand, another being a thin clay soil with peat subsoil underlain by sands, and a third a thin peat with peaty clay or clay subsoils.

Two series of fine-textured gley soils are associated with clay sediments—one series occupying shallow depressions occurring principally in the S.W., S. and N. central parts of the swamp while another series occupies a very gently sloping or shelving area along the northern half of its western boundary.

A third series of sandy gleys comprises the dominant soils of the swamp area. The organic-cemented sand "pan" beneath part of these (and some other) soils I interpret as a fossil soil horizon. This may he the B horizon of ground water podzols formed on the sandy plain, following emergence, under conditions of low water-table before the commencement of spring activity, or, more likely, before the influence of the spring waters spread as far as they finally did.

Heath plains composed of sands occur along the margins of the swamp to the north, east and south, and at the same general level as the adjacent swamp soils.

The soils of these plains are:

1. Ground water podzols—a better-drained type on the small sand banks and ridges, and poorly drained, leading to peaty, types on the wetter level to undulating areas.
2. Button grass peats—in depressions.

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RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

GEOLOGY OF PORTION OF THE WESTERN TIERS

By

J. B. A. McKellar

(*Manuscript received 7th December, 1956*)

ABSTRACT

A geological map is presented of an area of some 160 square miles of the Western Tiers and the adjacent plateau and lowlands. Some 4000 feet of Permian and Triassic sediments are described and a number of new formation names are introduced. Some features of the Jurassic dolerite which caps the sedimentary sequence are discussed. Comments on the structure of the area conclude the paper.

INTRODUCTION

The area described includes portion of the Central Plateau to the north of Great Lake, the marginal escarpment of the plateau between Western Rivulet and Woodside Creek and the lowlands adjacent to that scarp. The total area is approximately 160 square miles.

The field work was carried out by tracing geological boundaries on the ground and transferring these to aerial photographs. The base plans were prepared from aerial photographs using the slotted template method. This work and subsequent geological draughting was carried out by the Geological Section of the Hydro-Electric Commission.

Access to the area may be gained via the Lake Highway in the western portion of the area and via various second-class roads from the Midland Highway which lies some thirty road-miles east of the area. Within the area a system of secondary roads, indicated on the map squares, gives access to the foot of the scarp. Only the Lake Highway in the west and the Palmer River track in the east give vehicle access to higher levels so that most of the investigations have entailed journeys on foot from the lower levels.

Topographic Divisions

The area studied comprises three topographic divisions each characterised by distinctive climatic conditions and vegetation.

1. *Plateau Division*

The Plateau division extends from the depression occupied by Great Lake (Top water level 3381·8 feet) in the south-west of the area to the edge of the scarp. The general terrain is that of a dissected plateau. Flat floored, marshy valleys separate boulder-strewn, rocky ridges some of which have precipitous sides. Examination of the geological maps indicates that the disposition of the marshy valleys is controlled by structures (shear zones and faults) in the dolerite bedrock.

The vegetation of the marshy valleys is restricted to grasses and mosses while the rocky ridges support patches of stunted eucalypts. The restricted vegetation is probably a reflection of the extreme winter climate of the plateau. The precipitation is about thirty-five inches per annum, part of which is in the form of snow. Because of the low winter temperatures a snow blanket is maintained for weeks at a time and only in areas sheltered by ridges can the eucalypts survive.

2. *Escarpment Division*

The Escarpment Division may be defined as the area between the margin of the plateau and the one thousand feet contour. The profile of this escarpment is typically concave, the cliffs and scree fields of the upper levels giving way to timbered slopes decreasing in grade at lower levels. Major streams incise the scarp in steep sided, thickly timbered valleys but much of the drainage is effected in shallow migratory channels in the deep talus deposits on the slopes.

The climate is less extreme than on the plateau and the rainfall somewhat higher. The limited record suggest a figure in excess of forty inches per annum. Snowfalls occur on these slopes but the snow melts rapidly producing high run-offs and local flooding in the water-courses. The less extreme climate is reflected in the vegetation which is dense with good stands of milling timber up to the three thousand feet contour. Above the three thousand feet contour the vegetation is still thick

but is somewhat stunted partly because of the movements of the scree and talus and partly because of the inability of this material to support lush vegetation.

3. *Lowlands Division*

The Lowlands Division occupies the north-eastern portion of the area. It includes the pediment of the scarp and the low dolerite hills north-east of the scarp-forming fault.

The climate and vegetation differ from those of the plateau escarpment. The extremely localised showers which supplement the escarpment rainfall are absent and snowfalls are very rare. Lightly timbered grasslands and shallow migratory streams characterise the division though some degree of permanence in the stream courses exists beyond the line of the scarp-forming fault where the channels are cut into the dolerite bedrock. Storms on the escarpment cause periodic flooding of the gently sloping pediment so that the agricultural use of this area is restricted to grazing.

STRATIGRAPHY

A gently dipping sequence of Triassic and Permian sediments with an overall thickness of approximately 4000 feet is overlain by a thick and, in part, transgressive dolerite sill. The products of erosion of these rocks form extensive deposits in some parts of the area. The stratigraphic sequence is shown in the table below.

Stratigraphic Table

System	Group	Formation	Rock Type	Thickness	
Recent to Pleistocene			Rock-slides, Scree, Talus, Alluvium, Glacial Deposits		
Tertiary	Launceston (?)		Sands, clays, gravels		
		EROSION INTERVAL STRONG EPEIROGENY AND FAULTING PENEPLANATION AND UNCONFORMITY			
Jurassic			Dolerite	1000′ +	
Triassic		Brady	Sandstones, siltstones, shales	540′	1930′
		Tiers	Thinly bedded sandstones, siltstones, shales	280′	
		Cluan	Sandstones and shales	460′	
		Ross	Massive sandstones	650′	
		DISCONFORMITY (?)			
		Jackey	Shales	140′	
Permian	Ferntree	Eden	Mudstones	20′	687′
		Blackwood	Conglomerate	2′	
		Drys	Mudstones	350′	
		Palmer	Sandstone	5′	
		Springmount	Mudstones	280′	
		Garcia	Sandstone	30′	
	Woodbridge	Weston	Mudstones	30′	265′
		Dabool	Sandstones	40′	
		Meander	Mudstones	195′	
	Liffey	Creekton	Wormcast sandstones	10′	90′
		Woodside	Sandstones	35′	
		Kopanica	Shales and sandstones	15′	
		Flat Top	Sandstones	30′	
	Golden Valley	McRae	Mudstones	115′	170′
		Billop	Sandstone	10′	
		Brumby	Calcareous mudstone	45′	
		Quamby	Mudstones	250—330′	
		Stockers	Tillitic conglomerate	340′+	

QUATERNARY SYSTEM

Rocks of this system include superficial deposits of Pleistocene and Recent age.

1. *Rock Slides, Scree, Talus*

The collapse of the dolerite cliffs forming the upper margin of the escarpment has produced extensive deposits on the slopes of the scarp. Drilling has proved these deposits in the vicinity of the cliffs to depths in excess of 500 feet.

Major collapses of the dolerite cliffs have resulted in the movement down-slope of coherent masses some chains in extent. During the movement many of these masses have rotated through as much as ninety degrees as indicated by the direction of the prominent jointing. The pronounced vertical jointing is a feature of the dolerite cliffs. These rock-slide masses form cliffs up to 100 feet in height on the slopes below the undisturbed dolerite.

Minor falls from the undisturbed dolerite cliffs produce steep scree slopes at the foot of these faces. The scree blocks (joint blocks of the dolerite) range in size up to 20 feet but mainly fall in the range from two to five feet. The angle of repose of this material is about 30 degrees and slopes of this order are usually encountered at the foot of the dolerite cliffs.

Local movements of the rock-slides and scree material, often associated with the collapse or disintegration of the rock-slide masses, produce "ploughed fields"—areas devoid of vegetation consisting of angular blocks of dolerite without any preferred orientation of jointing.

The weathering of the dolerite of the rock-slides and scree falls produces heavy brown clays. Residual rounded boulders of dolerite in a matrix of this clay obscure the bedrock over much of the escarpment face.

2. *Alluvium*

The transport of material by sheet and rill erosion from the scarp face results in the deposition of a sheet of alluvium on what may be regarded as the scarp pediment. As well as the dolerite boulders and clays of the talus zones it contains clays, silts and sands from the sediments at lower levels on the scarp face. This material may be as much as 30 feet thick near the base of the scarp face and almost certainly thins towards the eastern edge of the area.

3. *Glacial Deposits*

Throughout the Central Plateau abundant evidence of glacial action has been noted. Glacial over-deepening in zones of less resistant bedrock has produced a pattern of depressions. These depressions are now occupied by swamps some of which are known to be underlain by tills. While no tills have been revealed by drilling or surface mapping in the area in question it is distinctly possible that such deposits occur within this area.

Large accumulations of angular dolerite boulders at various points on the surface of the plateau, notable in this area in the vicinity of the lake, may be ascribed to glacial action.

TERTIARY SYSTEM

The extent of the Launceston Tertiary Lake, described by Carey (1947), is not known with certainty but its western margin may well have reached the depression between MeRae Hills and the Tiers. Soil tests on clay samples collected along Palmer Rivulet downstream of co-ordinate 4880 E. show that these clays are pre-compressed, presumably by overlying sediments since removed. Further, boulders of "grey billy" and fragments of laterite usually associated with the old (possibly Pliocene) surface of the Lake sediments have been noted in this area. It seems probable, therefore, that some of the clays and gravels which obscure the Permian bedrock in this vicinity belong to the Launceston Group of Tertiary sediments. The thickness of these deposits is of the order of 20 feet.

JURASSIC (?) DOLERITE

Owing to the lack of fossil evidence in the Triassic sediments and the absence of sediments between the early Jurassic and Lower Tertiary, the age of the dolerite cannot be accurately determined. The writer has followed Hills, Carey and others in assuming a Jurassic age for the dolerite.

The principal occurrence of dolerite in this area is in the form of a thick sill-like sheet intruded at the close of an earlier period of sedimentation which is considered to have extended through the Triassic and probably into the Jurassic Period. The upper surface of the sheet has been exposed and eroded throughout the area. The lower surface of the sill-like intrusion may occur in the sedimentary sequence anywhere above the Ross Formation. Thus its transgressions through the sedimentary sequence total approximately 1250 feet. The maximum measured thickness of the dolerite sill is in excess of 1000 feet though great variations of thickness result from the transgressive nature of its lower boundary and the erosion of its upper surface.

Where the dolerite intrudes a predominantly sand-grade formation, the pure sill-form of the intrusion may be retained over an extensive area. Thus the dolerite-sediment contact low in the Cluan Formation extends, without a major transgression, from Drys Bluff (Map Square 4786) southward to the Palmer Track (Map Square 4785) and in the area east of the Tiers Fault no transgressions from a similar horizon have been noted. Where the lower surface of the intrusion occurs in the Tiers or Brady Formations (both predominantly shale deposition), the contact is irregular and frequent shelving of the contact across the sedimentary sequence occurs. The dolerite-sediment contact may cut across the stratification at any angle but there appears to be some preference for a slope of 5 to 15 degrees.

At several points in the area there is evidence of dolerite intrusion into sediments stratigraphically lower than the Cluan formation. In the north-

west of Map Square 4686 a steep transgression of dolerite through the Permian sequence was mapped. In the north-west of Map Square 4786 an area of dolerite talus suggests the presence of a dolerite intrusion through the Permian sediments. These two intrusions may well be "feeders" of the sill dolerite higher in the sedimentary sequence.

It has been suggested (Professor S. W. Carey—personal communication) that the two areas on Map Square 4885 marked as talus and interpreted as talus "flatirons" by the author are more probably remnants of a thin sheet of dolerite intruded low in the Permian sequence.

Megascopic contact effects in the dolerite are restricted to a narrow zone of fine-grained to glassy dolerite usually closely jointed. Sediments in the vicinity of the contact show "baking" effects which are best developed in the fine-grained members.

The dolerite is well jointed, a strong system of vertical joints producing a structure akin to the organ-pipe structure characteristic of basalts. In addition to cooling fractures a system of strong, near-vertical joints probably related to the Tertiary fault systems is apparent. In areas of exposed rock these major joint systems are evident on the aerial photographs.

The petrology of the Tasmanian dolerite has been described by Edwards (1942) and Prider (1948). Rock magnetism and differentiation of the sill in this area has been discussed by Jaeger and Joplin (1954).

Triassic System

Triassic rocks outcrop on the upper slopes of the scarp along the full length of the Tiers in this area. Further exposures occur to the east of McRae Hills on Map Square 4886. The sequence of flatly dipping Triassic rocks is bounded below by the disconformable contact with the Permian rocks and above by the dolerite sheet. Because of the transgressive nature of this sheet the thickness of the Triassic sequence varies from 650 feet to nearly 2000 feet. Exposures are generally poor, particularly of the shale members, but core drilling in connection with investigations for the proposed Great Lake North power development has provided excellent stratigraphic information over much of the sequence in an area where it approaches the maximum known thickness. The cores provide fresh rock and a continuity of the sequence not available in surface outcrops. Some fourteen diamond drill holes have entered the Triassic rocks along two lines running south-west for a distance of some four miles from points 4825 E. 8505 N. and 4805 E. 8515 N. respectively (Map Square 4885). A generalised sequence throughout the Triassic based where possible on drilling information is shown in the text figure. It represents a system of sediments probably laid down under lacustrine or swamp conditions. The lensing-out of beds in short distances and rapid facies variation make correlation difficult. The Triassic sequence has been divided into four formations.

1. *Brady Formation*

The Brady Formation consists predominantly of 'felspathic' sandstones and dark grey shales in approximately equal amounts. The sandstones range in grain size from fine to medium. The fresh core is usually mid-grey though some of the fine-grained members are greenish-grey. Black mica flakes on bedding planes assist parting in the direction in most members. Carbonaceous bands up to half an inch in thickness are a feature of the sandstones and coal crescents with a maximum dimension of several inches are also evident. The dark grey shales usually contain plant fragments. Parting along bedding planes is frequently assisted by mica plates on these planes. Some of the shales are faintly and finely banded, the banding being produced by alternations of shale and siltstone or fine sandstone.

As well as the two major lithological types which together constitute more than 90 per cent of the sequence, siltstones, carbonaceous shales and coal seams also occur. The upper half of the formation is characterised by thin coal seams usually some six inches thick but ranging up to 5 feet in thickness. This part of the sequence may possibly be correlated with the upper Triassic coal measures in other parts of the State though such correlations of coal measures are scarcely valid.

The Brady Formation, which has a maximum measured thickness in this area of some 540 feet, is underlain conformably by the Tiers Formation. It was named after Brady's Lookout, a prominent topographical feature and Trig. point in the vicinity of which the drilling (which permitted the study of the formation) was carried out.

The "baking" effect of the dolerite intrusion on the invaded sediments was observed in eight drill holes which penetrated the contact between the dolerite and the Brady Formation. In every case but one the contact occurred within a shale member. The "baking" effected persisted for as much as 30 feet into the sediments and produced a homogeneous buff-coloured clay stone with conchoidal fracture. This material breaks up rapidly on drying. Similar material outcrops in a creek bed near the Lake Highway (4651 E. 8612 N.) and is apparently quite resistant to erosion while normal moisture content is maintained. Silt or sand bands within the zone of "baking" are readily discernible but these, too, have assumed the typical baked colour. The baked siltstones and sandstones do not disintegrate on drying. In the one case where the contact occurred in a sandstone member the "baking" effect was restricted to a few feet and the only discernible changes in the sediment were in colour and hardness. The sandstone was much tougher than its unbaked counterparts and could be described as a hornfels.

2. *Tiers Formation*

An assemblage of grey-green sediments ranging in grade from shale to medium sandstone constitutes the Tiers Formation. Boundaries between beds are frequently gradational and individual members are generally somewhat thinner than beds of the other Triassic formations. As well as the broader alternation of sandstones and shales, the

shales themselves are faintly "pencil" banded. The sandstones are of the "felspathic" type similar to those of the Brady Formation but without coal or carbonaceous bands and with the characteristic colour of greenish-grey in fresh rock and greenish-brown (khaki) in the weathered material. The black shales which constitute a large proportion of the formations above and below the Tiers Formation represent only about 5 per cent of this formation and occur near the middle of the formation.

Plant fragments occur in several beds in profusion but the majority of beds are barren.

The basal member is somewhat thicker and coarser than other sandstones in the formation. It contains well rounded quartz grains constituting some 30 per cent of the rock, a feature not apparent in other members of the formation.

The formation outcrops at a number of points on the Lake Highway (Map Square 4686) and occasionally on the upper slopes of the Tiers south of the Palmer Rivulet. The complete sequence is available in the drill cores mentioned earlier where the measured thickness is some 280 feet. The Tiers Formation rests conformably on the Cluan Formation.

3. *Cluan Formation*

The Cluan Formation consists of fine to medium grained sandstones, frequently highly quartzose, interbedded with dark-grey shales and occasional siltstones. Zones of "pencil banded" cream sandstone and dark-grey shale are not uncommon. The high proportion of dark-grey shales (about 50 per cent of the formation thickness) and absence of green shales distinguishes the formation from the Tiers Formation while the presence of numerous highly quartzose sandstones distinguishes it from the Brady Formation. While shales and sandstones are present in approximately equal proportions the formation grades from predominantly sandstones near the base to predominantly shale near the top.

Towards the middle of the formation several beds of siltstone with abundant plant fragments occur but generally the sediments are barren. Throughout the formation restricted clay-pellet bands occur in the sandstones. Neither of these features appear to be sufficiently persistent laterally to represent reliable marker horizons.

Sandstones of the Cluan formation outcrop on the Tiers face but outcrops are of limited extent. More persistent outcrops are present on Cluan Tier (Map Square 4786). The drill cores mentioned earlier represent the most complete record with a measured thickness of 460 feet. The Cluan Formation rests conformably on the Ross Formation.

The Cluan Formation is a receptive host rock for the dolerite intrusion. The dolerite contact occurs within the Cluan Formation over much of the area. On the Tiers from Drys Bluff to the Palmer River, on Cluan Tier and on McRae Hills the dolerite sheet rests on Cluan sediments. Moreover the strong sandstones of the Cluan apparently impede transgression across the sequence and the pure sill-form of the dolerite sheet is maintained over long distances.

4. *Ross Formation*

The Ross Formation consists predominantly of impure, medium-grained quartz sandstone. In fact, drill holes which have penetrated this formation for some 270 feet reveal nothing but sandstone with only minor variations in grain-size. Cliff faces up to 300 feet in height (4820 E. 8507 N.) reveal minor lenses of claystone but no rock types other than sandstone, which is persistent laterally.

The sandstone, light-grey when fresh, weathers yellow and this weathering persists for hundreds of feet in drill holes suggesting that the sandstone is reasonably permeable.

Outcrops are frequent on the Tiers face and a fairly persistent line of cliffs marks this formation. The measured thickness is some 650 feet.

Permian System

Gently dipping Permian rocks underlie the Triassic sequence apparently disconformably though no exposed contact between the two could be found. The Permian rocks rest unconformably on Pre-Cambrian rocks to the east of the mapped area. Within the area no pre-Permian rocks have been encountered either in surface mapping or diamond drilling. Within the system the formations are apparently conformably related.

The thickness of the Permian sequence is in excess of 2000 feet and outcrops occur fairly persistently on the lower slopes of the Tiers.

Diamond drilling in connection with investigations of the proposed Great Lake North power development was carried out along two lines on Map Square 4886 joining the point 4869 E. 8545 N. with points 4825 E. 8505 N. and 4805 E. 8515 N. Twenty-three holes ranging in depth from 50 feet to 1100 feet were drilled in Permian rocks and a generalised Permian sequence based on drill logs is shown in the text figure.

The system is predominantly marine, the lithology being influenced, apparently, by the glaciation of the adjacent land surface. The depth of the seas during sedimentation, as inferred by the grain-size of the sediments and the associated fossil types, varies over quite wide limits. Inspection of the graphic log reveals the rhythmic nature of these changes.

1. *Jackey Formation*

Freshwater shales bearing abundant, but so far not diagnostic, plant fragments have been found at a number of points between the Ross Formation and the Permian mudstones. The nature of the contact between this and adjacent formations is not known and it is a matter of conjecture as to whether the formation belongs to the Permian or the Triassic sequence. It has been suggested that it may be correlated with the Cygnet freshwater Permian rocks.

The estimated thickness of these shales and the accompanying minor sandstones which make up the formation is 140 feet. The type area of the formation is in the catchment of Jackeys Creek at 4663 E. 8660 N. Better exposures of this formation have since been reported from Western Creek to the north-west of the mapped area.

Ferntree Group

The Ferntree group of six formations consists of alternations of thin conglomeratic sandstones with thick mudstones. This group, which has been recognised at a number of places throughout the State, has been subdivided in this area into six formations with a total thickness approaching 700 feet.

2. *Eden Formation*

The topmost formation of the Ferntree Group consists of grey to black micaceous mudstone apparently devoid of erratics and marine fossils. It is extremely fine-grained, massive and of medium hardness and consists essentially of quartz, felspar and mica. The estimated thickness of this formation is 20 feet. The type locality is in Map Square 4686 at 4665 E. 8663 N. where the formation is exposed in a creek-bed.

3. *Blackwood Formation*

The Blackwood Formation consists of well-rounded, white quartz pebbles up to one inch in diameter, but largely of quarter inch diameter, in a matrix of poorly sorted sandstone consisting essentially of quartz and felspar. It is an extremely resistant formation forming well marked benches on the Tiers face. The thickness of the formation varies from 2 to 5 feet. Because of its limited thickness and persistent outcrop it constitutes an excellent marker formation. The type locality of this formation is on the spur below Mt. Blackwood. A prominent and typical bench at about the 2000 feet contour is underlain by this formation which forms a small scarp at the margins of the bench (4810 E. 8524 N.). A more easily accessible exposure occurs in a waterfall on Map Square 4686 (4665 E. 8663 N.).

4. *Drys Formation*

The Drys Formation consists predominantly of micaceous mudstone with occasional bands of quartz mudstone in which angular grains of clear quartz are apparent in the hand specimen. The micaceous mudstone is essentially similar to the Eden Mudstone though somewhat lighter in colour. Mica plates on the bedding planes assist parting parallel to the bedding. In the quartz mudstones mica is much less conspicuous and the rock does not part readily.

Erratics of quartzite, slate and mica schist up to 2 inches in diameter occur in this formation but are not numerous. Four might be encountered in 100 feet of drill core. Marine fossils were not found.

Outcrops of this formation are not particular good but the formation usually occupies steep slop with only a thin soil cover so that frequent patch of outcrop may be found and these may be rapid extended with little effort. The type area is on t eastern spur of Drys Bluff on Map Square 47 (4785 E. 8620 N.). The measured thickness of t formation is some 350 feet.

5. *Palmer Formation*

The Palmer Formation is a poorly sorted quar felspar sandstone containing pebbles (or erratic of slate, mica schist and quartzite. The groun mass is light-grey when fresh but weathers crea It forms benches bounded by a small scarp on Tiers face and produces waterfalls in the strear The mudstones immediately above and below t sandstone show an increase in grain size towa this formation but the boundaries of the sandsto are well-defined. Because of its limited thickn and persistence of outcrop the formation is excellent marker for mapping. It may be d tinguished from the Blackwood Formation by absence of well-rounded, milky quartz pebbles a the presence of fairly numerous pebbles of quartz schist and slate.

The type locality of this formation is a wate fall on a branch of the Palmer River in Map Squa 4885 (4816 E. 8519 N.).

6. *Springmount Formation*

The Springmount Formation is a banded mu stone in which the banding results from alter tions of medium-grey micaceous mudstone a lighter grey quartz mudstone. The bands vary thickness from fractions of an inch to several fe The essential difference between the two types mudstone lies in the grain size of the quartz a the relative abundance of mica. The quartz mu stone is more resistant than the mica mudst and forms most of the outcrops of this formati

Occasional erratics have been noted in t formation but no fossils have been found. T thickness of the formation is approximately 3 feet. The type locality is on the Springmo property in Map Square 4786 (4790 E. 8623 A complete sequence through this formation h been obtained in drill hole 5004 (4822 E. 8509 N

7. *Garcia Formation*

The basal formation of the Ferntree Group the Garcia Sandstone. It is a grey, poorly sor sandstone consisting essentially of quartz and f spar and containing numerous quartzite, schist a slate pebbles (erratics) Marine fossils, nota brachiopods, occur in the lower horizons and se to distinguish this formation from the other san stones of the group. Like those sandstones it for benches on the Tiers face. The thickness of formation varies from 20 to 30 feet.

The type locality of this formation is at the he of Garcia Creek on Map Square 4885 where sandstone forms a broad bench bordered by a sc (4806 E. 8585 N.). Numerous sections of t formation have been obtained in drill cores.

This formation may well be correlated with the Risdon Sandstone of the Hobart area but the possibility that the Palmer Formation is the Risdon equivalent has influenced the author to introduce a new name for the basal member of the Ferntree Group in this area.

Woodbridge Group

The Woodbridge Group in this area consists of approximately 270 feet of sandstones and mudstones with occasional bands of limestone. Erratics occur sporadically throughout the group and marine fossils are common, two of the formations having very rich faunas. The group has been divided into three formations in this area.

8. *Weston Formation*

The uppermost formation of the group consists of dark-grey micaceous mudstone with a rich bryozoan fauna and occasional brachiopods. Several thin members of quartz mudstone with macroscopic angular quartz grains occur within the formation. The thickness of this formation varies between 30 and 40 feet.

The type locality of this formation is on Map Square 4785 where the mudstone outcrops in a creek bed at 4785 E. 8597 N. The formations above and below are also well exposed at this locality. A number of drill holes referred to earlier penetrate this formation.

9. *Dabool Formation*

The Dabool Formation consists of medium quartz and felspar grains in a mudstone matrix. Pebbles (erratics) occur in layers throughout the formation. A rich brachiopod fauna, also distributed in layers, characterises the formation. Like other Permian sandstones it forms benches on the Tiers slope.

The formation thickness varies between 25 and 40 feet. The type locality of the formation is the particularly well developed bench on Map Square 4885 at about the 1150 feet contour between Wood-side Rivulet and Dabool Creek (4865 E. 8508 N.). A more accessible locality is a creek bed at 4807 E. 8543 N. The formation has been penetrated in a number of the drill holes referred to previously.

10. *Meander Formation*

The Meander Formation, which is the basal formation of the Woodbridge Group, includes a number of lithologic units. A typical bore-log through this formation is given below:

0-110 feet:	A banded mudstone in which the banding results from alternations of quartz mudstone and mica mudstone. The individual bands are up to 15 inches in thickness. Brachiopod fragments were encountered at 52 feet and 68 feet and a layer of pebbles at 69 feet.
110-112 feet:	A limestone containing brachiopods.
112-170 feet:	A banded mudstone consisting of alternations of mica mudstone and grey quartz mudstone which includes numerous angular rock fragments up to a quarter of an inch across. Three inches of limestone was encountered at 140 feet and pebble layers at 120, 121, 123, 141 and 158 feet. At 150, 166 and 169 feet a mesh of calcite veins represented some 30 per cent of the core for a distance of several inches.
170-171 feet:	Grey "worm-cast" quartz sandstone. (Of doubtful lateral persistence.)
171-172 feet:	White, medium grained, quartz sandstone.
172-182 feet:	Half-inch alternations of grey, fine grained sandstone and black mica mudstone.
182-183 feet:	Quartz conglomerate with well-rounded white pebbles up to one inch in diameter. (Of doubtful lateral persistence.)
183-195 feet:	Half-inch alternations of grey, fine-grained sandstone and black mica mudstone.

The formation thickness is fairly constant and a number of measured thicknesses between 180 feet and 200 feet have been obtained. The type locality is the road cutting on Map Square 4886 (4820 E. 8628 N.). Several drill holes penetrated this formation.

Liffey Group

Well-sorted, medium grained, quartz sandstones and fissile, plant bearing and carbonaceous shales constitute the Liffey Group. Only the uppermost formation in which a brachiopod has been found is thought to be of marine origin. The group outcrops well as a fairly persistent line of cliffs in the Liffey Valley (Map Square 4786) and elsewhere outcrops in stream courses where it produces waterfalls. The group thickness varies from 90 to 100 feet and is divided into four formations in this area all of which have been penetrated in a number of drill holes referred to previously.

11. *Creekton Formation*

The Creekton Formation is a medium-grained quartz sandstone characterised by an abundance of "worm-casts". The origin of the organic traces referred to as "worm-casts" has not been definitely established. The fresh rock is a mottled grey rock with patches of black which have the appearance of tar. The weathered rock retains its mottled appearance in lighter shades.

The formation thickness varies from 7 to 12 feet and because of this restricted thickness and its characteristic appearance (it is the only laterally

persistent "worm-east" member in the Permian sequence) it represents an excellent marker formation.

The type locality is near the Creekton homestead on Map Square 4885 (4879 E. 8597 N.) where it forms a small cliff.

12. *Woodside Formation*

The Woodside Formation is a flaggy, well-sorted, medium grained, quartz, mica sandstone with several black shale bands up to one foot in thickness. Several lenses of well-rounded quartz conglomerate have been noted near the top of the formation. The flaggy character of the sandstone arises from a distribution of mica plates on bedding planes.

The formation thickness varies between 25 and 40 feet. The formation type locality is the gorge of an un-named tributary of Woodside Creek on Map Square 4885 (4870 E. 8510 N.).

13. *Kopanica Formation*

The Kopanica Formation consists essentially of grey to black shales with thin bands of white sandstone. The shales are micaceous and in some cases carbonaceous and plant fragments are quite common on several horizons. The sandstone bands which may be as much as six inches thick are a medium-grained sandstone similar in every respect to that of the formations above and below the Kopanica Formation.

The thickness of the formation and the percentage of sandstone bands within it vary over quite wide limits. Measured thicknesses of from 5 to 20 feet have been obtained and sandstone percentages may be as high as 20 per cent. The type locality is in a waterfall adjacent to the Kopanica homestead on Map Square 4885 (4803 E. 8573 N.).

14. *Flat-Top Formation*

The Flat-Top Formation consists of a flaggy, well-sorted, medium grained, quartz, mica sandstone with numerous dark-grey shale bands. It can be distinguished from the Woodside Sandstone only by the presence of numerous shale bands.

An interesting feature of this formation is that in some areas it is capped with up to seven feet of "worm-cast" sandstone. This particular member is apparently not persistent laterally but in those areas where it occurs two cycles of similar thickness embracing shale, sandstone and "worm-cast" sandstone may be recognised. In some areas a third "worm-cast" sandstone, underlain by sandstone and mudstone occurs near the base of the Meander Formation. These areas may be interpreted as showing three cycles similar in thickness and composition.

The formation thickness varies from 20 to 35 feet. The type locality is on the Flat-Top property where this formation forms the surface and bounding scarp of a small plateau on Map Squares 4885 (4868 E. 8523 N.).

Golden Valley Group

The Golden Valley Group contains a diversity of sediments containing marine fossils, sometimes in profusion, and boulders (erratics) of quartzites, slates and schists. Sandstones, mudstones and limestones are represented. Outcrops of this group are generally poor throughout the area and for this reason the group has been sub-divided into only three formations. On drill core information further sub-division could be made but this seems undesirable as drill core information is rarely available.

The group thickness is approximately 170 feet.

15. *MeRae Formation*

The MeRae Formation, while predominantly of mudstone, contains bands of marl up to one foot in thickness and is capped by 10 feet of dark-grey sandstone composed of small angular rock fragments in a mudstone matrix. A typical drill log of this formation is given below:

0-9 feet:	Grey, rock-fragment sandstone.
9-78 feet:	Mica mudstone with bands of marl at 20 feet and 50 feet, occasional erratics (to 2 inch diameter) and fossil detritus bands.
78-108 feet.	Alternating bands of mica mudstone and quartz mudstone up to 2 feet thick. Numerous layers up to 1 foot in thickness of pebbles and fossil fragments. One foot of marl at 102 feet.
108-118 feet:	Mica mudstone.

The formation thickness varies between 100 and 120 feet. The type locality is a road cut near the MeRae Hills property on Map Square 4885 (4895 E. 8594 N.). A number of drill cores are available in this formation.

16. *Billop Formation*

The Billop Formation consists essentially of a grey sandstone composed of clear rounded quartz grains in a calcareous matrix underlain by a quartzite conglomerate with a similar matrix which includes numerous brachiopod fragments. The two members are of approximately equal thickness. Greenish fragments which may be glauconite are present in the sandstone member. On weathering the matrix is removed and a characteristic cream porous sandstone remains.

The formation thickness varies between 10 and 20 feet. The formation forms benches on the lower slopes of the Tiers. The weathering of the formation produces a gravel surface on these benches consisting of the sand grains and conglomerate pebbles. These deposits are used locally as a road metal.

An interesting and diagnostic feature of these gravels is the presence of an encrusting foram (*Calcitornella?*) which is visible on one surface of a large number of the quartzite pebbles.

The type locality is a bench at the foot of Billops Bluff on Map Square 4885 (4875 E. 8518 N.). The formation was penetrated in a number of drill holes.

17. *Brumby Formation*

The Brumby Formation consists of a highly fossiliferous micaceous mudstone underlain by some 5 feet of limestone which may be classed in places as a coquina limestone. The black micaceous mudstone is particularly rich in *Fenestella* and *Stenopora* while the limestone contains abundant *Spirifers* and *Eurydesma*.

The formation thickness varies between 40 and 50 feet. The type locality is a steep slope which is being undercut by Brumby Creek on Map Square 4886 (4817 E. 8618 N.).

18. *Quamby Formation*

The Quamby Formation consists of a uniform and massive dark-grey mica mudstone in which layers of pebbles and fossil detritus are prevalent towards the top of the formation but decease in frequency until they disappear entirely from the lower half of the formation.

The thickness of this formation varies between 250 and 330 feet. Very few outcrops of this formation occur in this area though good bore sections are available. The formation was defined by Wells (1954).

19. *Stockers Formation*

The Stockers Formation is a tillitic conglomerate consisting of pebbles (or erratics) of quartzites, slates and schists in a groundmass of grey mica mudstone. A number of faceted erratics and several with striations have been found in the limited outcrops of this formation. The erratics range in size from fractions of an inch to a foot in diameter. There are lenses of mudstone where erratics are absent while in other places erratics form the major portion of the rock mass. While the erratics represent a large range of rock types there are zones where particular types predominate.

The Stockers Formation probably represents the basal formation of the Permian sequence in this area, as it has been demonstrated to do in neighbouring areas, but the basement rocks have not been exposed in this area.

Only one locality of Stockers Formation outcrop is known in the area mapped. This occurs in the bed of the Palmer River on Map Square 4885 (4878 E. 8548 N.). The formation has been proved by drilling to a thickness of 340 feet.

The formation was defined by Wells (1954) in an area to the north-west of the mapped area here.

CYCLES OF SEDIMENTATION

In the Permian and Triassic sequence of this area several broad cycles of sedimentation and marked changes in mineral composition of the sediments may be recognised.

Triassic Cycle

Inspection of the Triassic sequence reveals the gradual change from predominantly sandstone deposition (Ross Formation) to alternations of sandstone and dark-grey shales in approximately equal thicknesses by the time the top of the Cluan Formation is reached. The predominantly quartzose sandstones give way to felspathic sandstones in the same period. Following a period in which the strikingly different Tiers Formation was laid down, the Brady Formation of black shales and felspathic sandstones suggests a return to conditions similar to those prevailing during Cluan deposition.

Permian Cycle

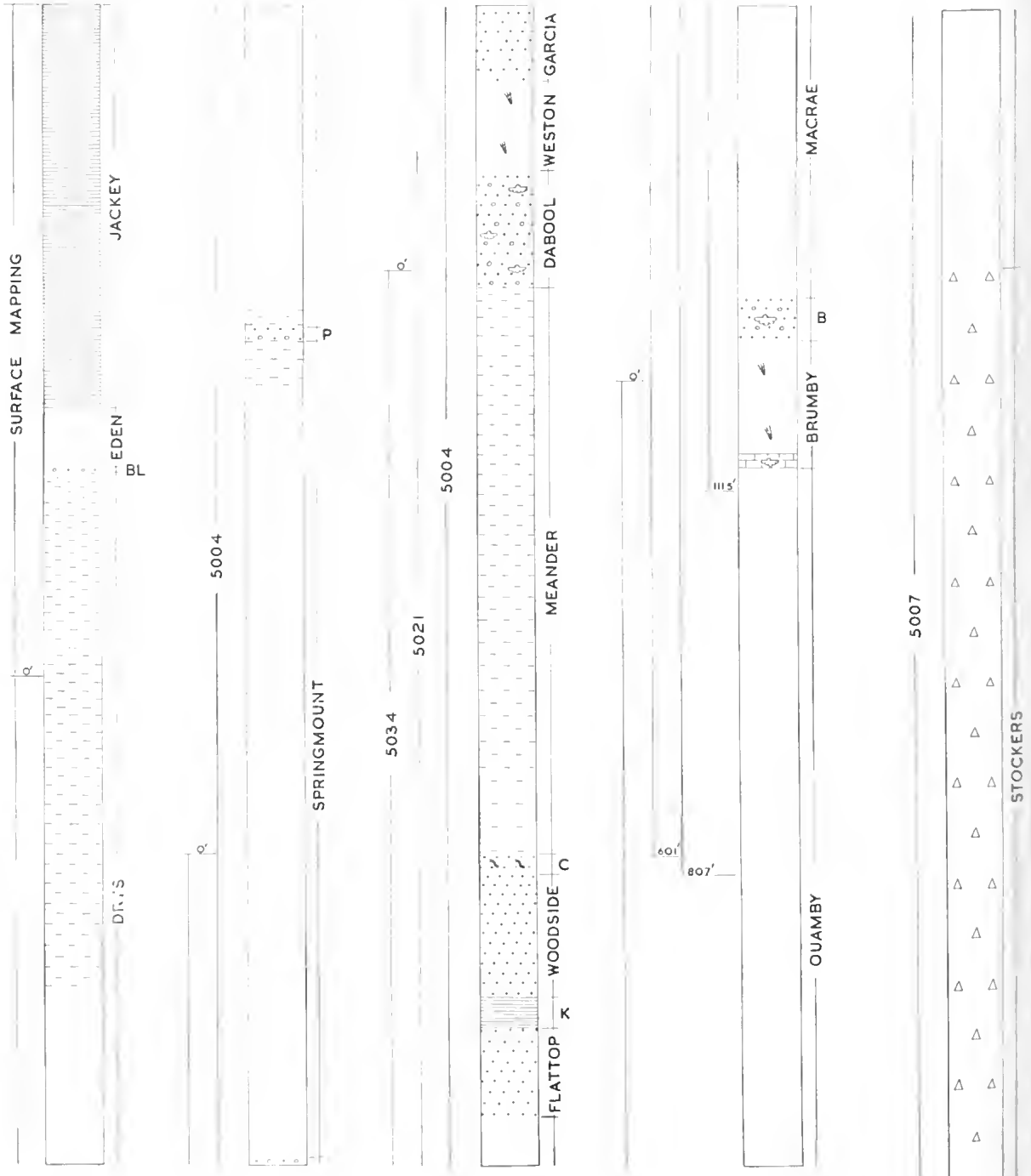
Cycles of sedimentation in connection with the Liffey Group have already been mentioned. If the marine sequences above and below this group are compared a number of strikingly similar characteristics are noted.

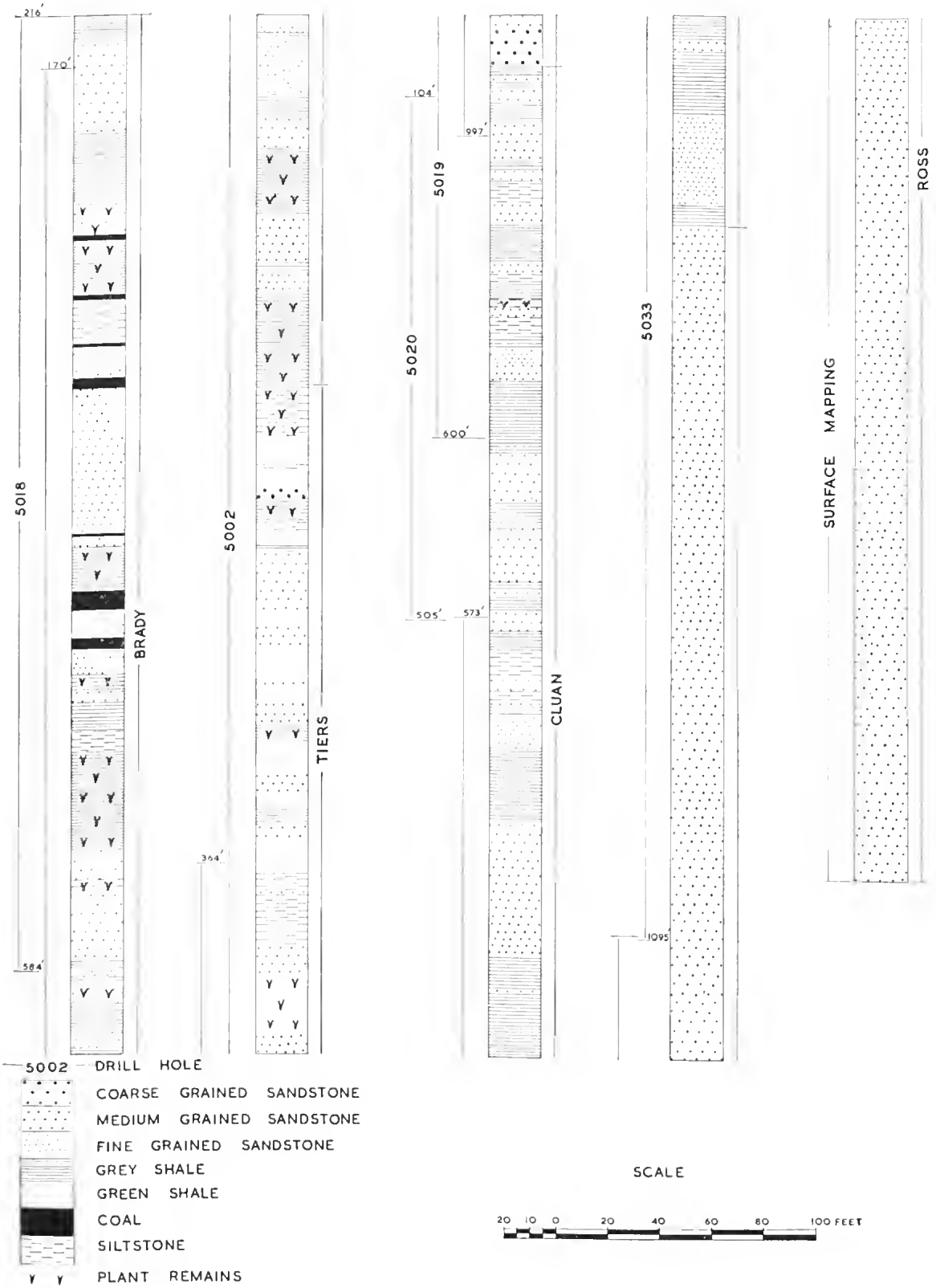
These may be demonstrated in the table below.

Formation	Rock Type	Formation
Liffey (90')	Barren Sandstone	Palmer (5')
McRae (115')	Mudstone with few erratics	Springmount (280')
Billop (15')	Conglomeratic sandstone with Brachiopods	Garcia (30')
Upper Brumby (35')	Mudstone with Bryozoans	Weston (30')
Lower Brumby (10')	Rich Brachiopod Fauna	Dabool (40')
Quamby (330')	Mudstone with erratics	Meander (195')

A further point of interest is the distribution of layers of erratics and fossil detritus in the Quamby-Golden Valley sequence. The frequency of layers increases upwards through the Quamby Formation to a maximum at the top of that formation. From a maximum in the Billop Formation the layers decrease in frequency upwards through the McRae Formation. This distribution could indicate the waxing and waning of ice action on an adjacent land surface.

GENERALISED PERMIAN SEQUENCE

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BRADY
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TIERS
104'
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CLUAN
5033
1095'
SURFACE MAPPING
ROSS
5002 DRILL HOLE
COARSE GRAINED SANDSTONE
MEDIUM GRAINED SANDSTONE
FINE GRAINED SANDSTONE
GREY SHALE
GREEN SHALE
COAL
SILTSTONE
PLANT REMAINS
SCALE
20 10 0 20 40 60 80 100 FEET

STRUCTURE

A. Geological History

The prolonged period of sedimentation during the Permian and Triassic was terminated by widespread injection of dolerite, probably of Jurassic age. Following the intrusion of dolerite and persisting until the early Tertiary a period of peneplanation produced a lateritised and bauxitised surface. Violent block faulting associated with the Tertiary Epeirogeny dismembered this surface. The Central Plateau was formed fringed by a scarp with a relief of 2000 feet. East of the area further faulting in the same sense increased the relief of the Central Plateau mass over the Midland mass to well over 3000 feet.

The Tertiary basalts and related rocks found to the south and west of the area may have extended into this area only to be removed by ice action during the Pleistocene glaciation of the area.

The pattern of marshes, the presence of glacial-type deposits in these depressions and vast accumulations of large, angular dolerite boulders in parts of the area suggest that a major ice sheet moved southwards across the area during the Pleistocene glaciation. Glacial over-deepening occurred along shear zones in the dolerite surface on the site of the present marshes.

The passing of the glacial period saw the development of a system of minor streams draining the Plateau surface into Great Lake. As the catchment boundary of the lake corresponds closely with the Plateau, margin plateau drainage plays little part in the incision of the scarp.

As the scarp fringing the Plateau retreats the products of its erosion from a broad, gently sloping alluvial fan at the base of the scarp. These deposits are constantly being reworked and removed by stream action as evidenced by the almost complete lack of weathering in the underlying rock.

B. Faulting

The Tertiary epeirogeny produced a network of faults and shear zones separating tilted blocks. There is some tendency towards a general south-west dip of the sediments in this area. Divergence in the direction and amount of the dip, however, indicates that the various blocks were tilted independantly during the epeirogeny. To accommodate this tilt-variation, the faults between blocks are often complex, a number of sub-parallel faults and crush zones representing the overall displacement between contiguous blocks. Further adjustment between blocks has been attained in wide zones of shearing which show little evidence of any associated vertical movement of either bounding block.

Because of the closeness and complexity of faulting a given fault is rarely constant in throw or direction. Throw of one fault of a system may be transferred via a transverse fault to another member of the system. An example of this may be seen in the Tiers Fault near the north-east corner of Map Square 4885. Here the throw on a north-north-west trending fault is transferred along a transverse fault trending west-north-west to another member of the north-north-west system. The tendency is also revealed in the disposition of the marsh deposits, as in Map Square 4785.

As far as can be ascertained all faults are normal and near-vertical. According to their direction, the faults in this area may be grouped into four systems.

(i) A system trending north-north-west conforms with the major trend of faulting recognised over much of the old "structural core" of Tasmania. In this area the trend is not nearly as pronounced. The major fault of the area, the Tiers Fault, belongs to this system as do some minor faults and shear zones

(ii) A system trending east-north-east are the most numerous and also the most persistent laterally though the throws rarely exceed 200 feet There is a tendency, if only slight, to a radial arrangement about a centre west-south-west of the area. This is well illustrated by the faults and shears of Map Square 4785.

(iii) A minor system trending north-north-east consists of members of small throw and restricted lateral persistence. An interesting development in the shear pattern is evident on Map Square 4785 where a combination of shears trending north-north-east and those trending east-north-east produce a resultant linear trending north-north-west. As this direction coincides with Trend (i) it suggests that there may be a structural weakness in the basement rocks in this direction.

(iv) A fourth system, not well represented numerically in this area but including a major fault between Cluan Tier and Drys Bluff (Map Square 4786), trends west-north-west. This system is best developed in the north of this area.

From a regional view-point the fault evidence suggests that the area is perhaps marginal to the Pre-Cambrian "core" of Tasmania and that it lies east-north-east of this core. In support of this theory we have the north-north-west trend less strongly developed than in other areas to the south and south-west, the tendency to a radial arrangement about a point west-south-west of this area and quite a strong development in the north of this area of a west-north-west system.

C. Origin of the Tiers

While the formation of the Western Tiers in the east and north-east of the area may be attributed to parallel retreat of scarps formed by the Tiers Fault and Cluan Fault it should be noted that the scarp in the west of the area (Map Square 4686) is of a different origin. No fault of any magnitude occurs between Quamby Bluff on the northern margin of the Map Square 4686 and the Tiers proper in the south of this Map Square. Yet the scarp formed here is remarkably like those which owe their origin to faulting. It appears that this western portion of the Tiers was formed by stream incision of a sheared zone belonging to the west-north-west system.

D. Major Dolerite Transgressions

It has been noted that the lower boundary of the dolerite sheet within the mapped area occurs at various levels in the Triassic sequence. Over a large portion of the area the dolerite is in contact with the Cluan Formation. This disposition of the dolerite persists on the Tiers face from a point immediately east of the upper Liffey Valley (Map Square 4686) to a point on the Palmer River Valley on Map Square 4785 (4775 E. 8510 N.). A short distance beyond these points, on the Lake Highway on Map Square 4686 and at Mt. Blackwood in the south-east corner of Map Square 4785 the host rock of the dolerite is the Brady Formation. Thus major transgressions have occurred near the points mentioned. It has not been possible to delineate the plane of these transgressions, if in deed it is a plane, but geophysical surveys carried out by the Bureau of Mineral Resources and subsequent diamond drilling have proved the presence of a transgression of similar magnitude immediately to the south of the Palmer Valley transgression (beyond the mapped area) which is probably an extension of that transgression.

It is perhaps significant that the general level of the plateau rises steeply in the same sense as the transgressions in both of these areas.

ACKNOWLEDGEMENTS

The geological field work has been carried out as part of the regional mapping programme of the Hydro-Electric Commission and the author wishes to express his gratitude to that organisation for permission to publish this article. The base plans and drafting have been carried out by the Geology Section of the Commission to whom full acknowledgement is due. Professor S. W. Carey introduced the writer to the area and has always been ready with helpful criticism and advice.

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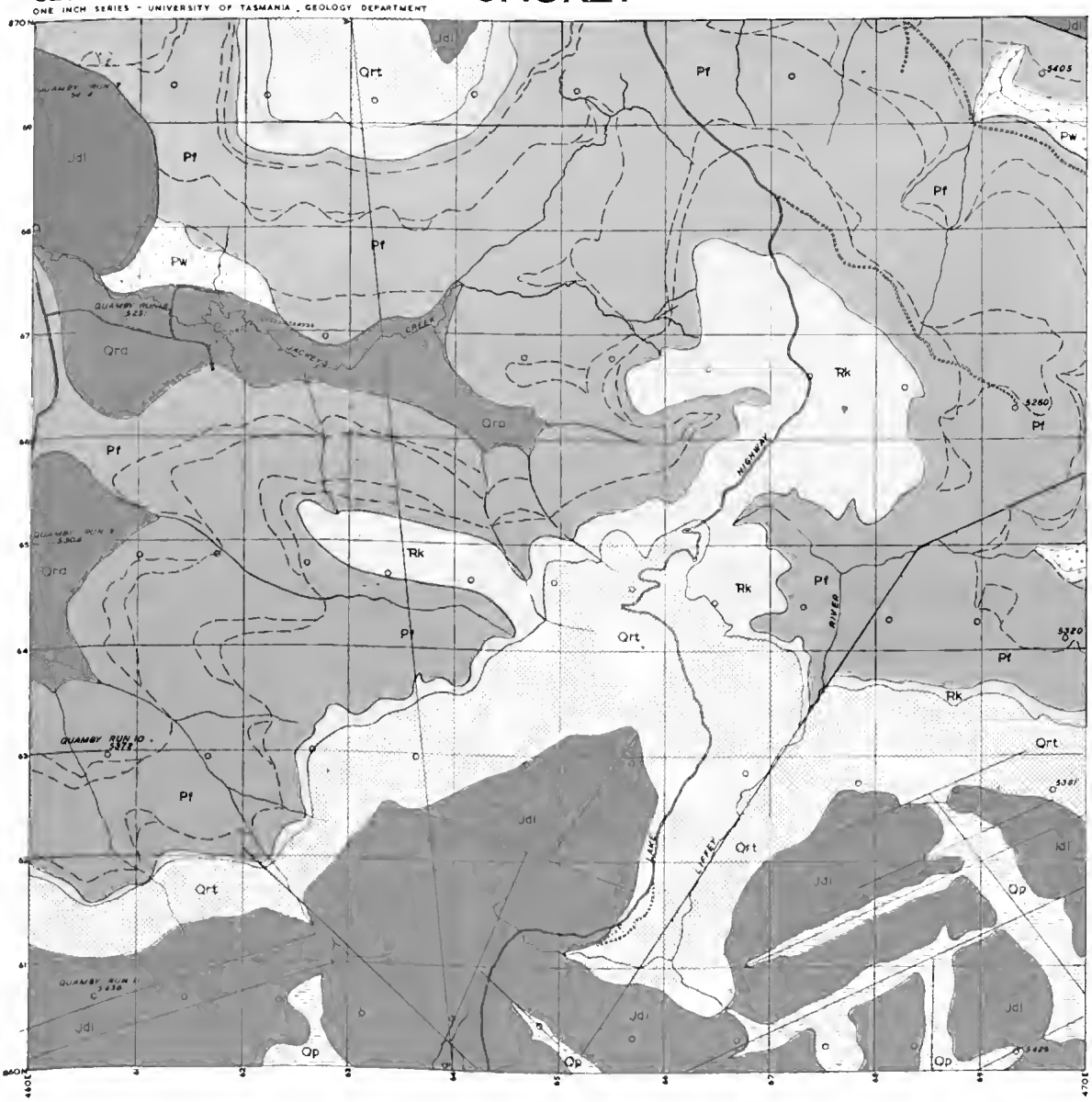
L. G. Shea, Government Printer, Tasmania.

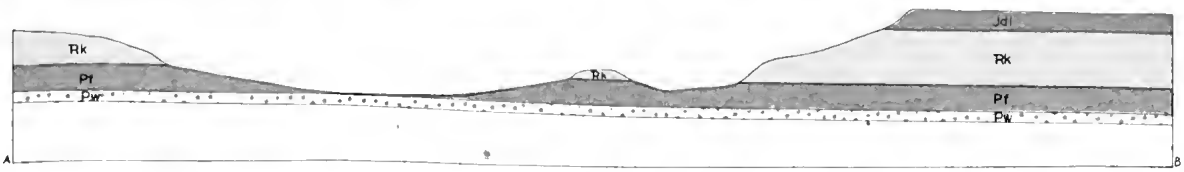
GEOLOGY OF TASMANIA

ONE INCH SERIES - UNIVERSITY OF TASMANIA, GEOLOGY DEPARTMENT

JACKEY

4686





Quaternary System

- Qra — ALLUVIUM
- Qrt — TALUS
- Qp — MARSH DEPOSITS

Jurassic System

- Jdl — DOLERITE

Triassic System

- Rk — KNOCKLOFTY SANDSTONES AND SHALES

Permian System

- Pf — FERNTREE GROUP
- Pw — WOODBRIDGE GROUP
- Pl — LIFFEY GROUP
- Pgv — GOLDEN VALLEY GROUP

— SCALE —

1 / 0 1 2 3 4 5 000 10,000 2 MILES

KEY MAP SHOWING MAGNETIC VARIATION

9 5°E 10°E 10 5°E

Compilation from Aerial Photographs.
Trigonometric Station Control by courtesy Forestry Dept.
Origin of co-ordinates 400,000 yds West and 1,800,000 yds South of True Origin of Zone 7.

MAPPED AND COMPILED BY
J.B.A McKELLAR APRIL 1956

- FAULT
- LINEAR BOUNDARIES
- GROUP
- FORMATION
- FAULT BLOCK TILT
- ROAD
- VEHICULAR TRACK
- TRACK

GEOLOGY OF JACKEYS CREEK AREA
MAP SQUARE 4686

1. BIBLIOGRAPHY:

CAREY, S. W., 1947 — Geology of the Launceston District. **Rec. Queen Vic. Mus., Launceston,** pp. 31-46.

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2. STRATIGRAPHIC TABLE:

SYSTEM	GROUP	FORMATION		ROCK TYPE	THICKNESS
Recent to Pleistocene				Scree, Talus Alluvium Glocial deposits	
		EROSION INTERVAL STRONG EPEIROGENY AND FAULTING PENEPLANATION AND UNCONFORMITY			
Jurassic				Dolerite	1000'+
Triossic			New Town	Sandstone, Shales, Cool	435'
			Tiers	Siltstone, Shale	385'
			Cluan	Sandstone, Siltstone	425'
			Ross	Massive Sondstones	630'
			Jackey	Sholes	140'
		DISCONFORMITY?			
Permian			Eden	Mudstones	20'
			Blockwood	Quartz Conglomerote	2'
		Ferntree	Drys	Mudstone	350'
			Polmer	Sondstone	5'
			Springmount	Mudstone	280'
			Risdon	Sandstone	30'
			Weston	Bryozoan Mudstone	30'
		Woodbridge	Dobool	Brochiopod Sandstone	40'
			Meander	Mudstone	195'
			Creekton	Wormcast Sondstone	10'
		Liffey	Woodside	Sandstone	35'
			Kopanica	Shole and Sondstone	15'
			Flattop	Sandstone	30'
			MacRae	Mudstone	115'
		Golden Valley	Billop	Brochiopod Conglomerote	10'
			Brumby	Fossiliferous Limestone, Marl	45'
			Quomby	Mudstone	330'
		Stockers		Tillitic Conglomerote	340'+

3. LOCALITIES OF SPECIAL INTEREST:

Type locality of Jackey Formation; track 4664E. 8657N.
Weston Formation fossil locality; road-cut 4683E. 8700N.
Risdon exposures in Liffey Falls 4695E. 8649N.
Triossic sequence Jackey to Newtown; Road-cuts on Lake Highway
Dolerite — sediment contact; Road Quarry 4656E. 8614N

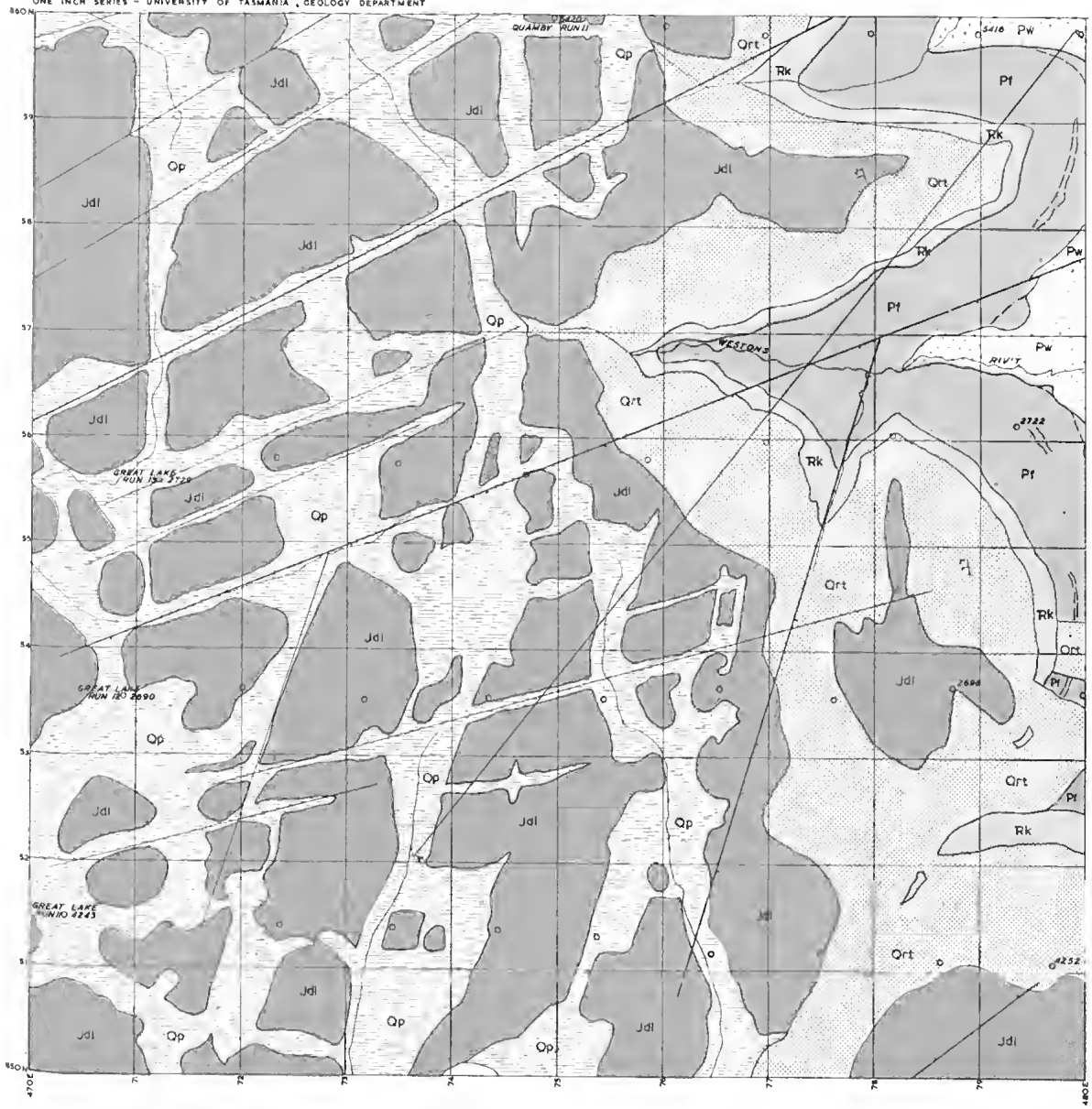
4. DOLERITE INTRUSION CENTRE:

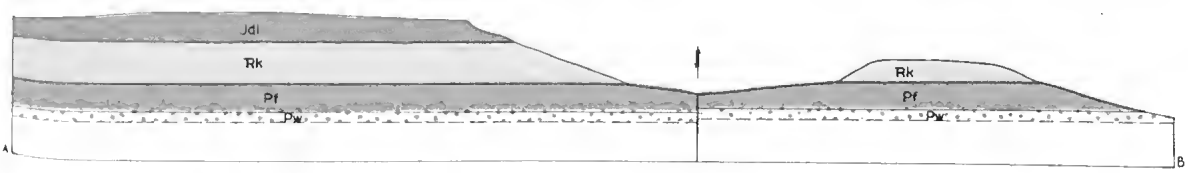
Extensive dolerite outcrops in the north-east of the Map Squore suggest a dolerite intrusion centre in this vicinity.

5. SCARP FORMATION:

Stream erosion of a probable sheor zone along Jackeys Creek has produced the opposing scorps of Quamby Bluff and Western Tiers. No appreciable fault movement was involved in the formation of these scorps.

WESTON





Quaternary System
- Qa — ALLUVIUM
- Qrt — TALUS
- Qp — MARSH DEPOSITS

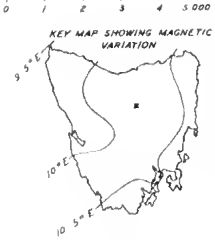
Jurassic System
- Jdl — DOLERITE

Triassic System
- Rk — KNOCKLOFTY SANDSTONES AND SHALES

Permian System
- Pf — PERNTREE GROUP
- Pw — WOODBRIDGE GROUP
- Pl — LIFFEY GROUP
- Pgv — GOLDEN VALLEY GROUP

— SCALE —
0 — 2 MILES
0 1 2 3 4 5.000 — 10,000

KEY MAP SHOWING MAGNETIC VARIATION



Compilation from Aerial Photographs. Trigonometric Station Control by courtesy Hydro-Electric Comm. Origin of co-ordinates 400,000 yds West and 1,800,000 yds South True Origin of Zone 7.

MAPPED AND COMPILED BY
J.B.A.McKELLAR APRIL 1956

- FAULT
- LINEAR
- BOUNDARIES
  - GROUP
  - FORMATION
  - FAULT BLOCK TILT
- ROAD
  - VEHICULAR TRACK
  - TRACK

GEOLOGY OF WESTON CREEK AREA
MAP SQUARE 4785

1. BIBLIOGRAPHY:

CAREY, S. W., 1947 — Geology of the Launceston District. **Rec. Queen Vic. Mus., Launceston,** pp. 31-46.

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Triassic		New Town	Sandstone, Shales, Coal	435'
		Tiers	Siltstone, Shale	385'
		Cluon	Sandstone, Siltstone	425'
		Ross	Massive Sandstones	630'
		Jockey	Sholes	140'
		DISCONFORMITY?		
Permian	Ferntree	Eden	Mudstones	20'
		Blackwood	Quartz Conglomerate	2'
		Drys	Mudstone	350'
		Palmer	Sandstone	5'
		Springmount	Mudstone	280'
		Risdon	Sandstone	30'
	Woodbridge	Weston	Bryozoan Mudstone	30'
		Dabool	Brachiopod Sandstone	40'
		Meander	Mudstone	195'
	Liffey	Creekton	Wormcast Sandstone	10'
		Woodside	Sandstone	35'
		Kopanico	Shale and Sandstone	15'
		Flattop	Sandstone	30'
	Golden Valley	MacRae	Mudstone	115'
		Billop	Brachiopod Conglomerate	10'
		Brumby	Fossiliferous Limestone, Marl	45'
		Quomby	Mudstone	330'
		Stockers	Tillitic Conglomerate	340'+

3. LOCALITIES OF SPECIAL INTEREST:

Type Locality of Weston Formation; Creek bed	4785E. 8597N
Outward hinging of dolerite cliff blocks	4791E. 8512N.
Slip-circle collapse of dolerite cliff	4796E. 8512N.
Joint-plane slipping of cliff blocks	4792E. 8535N

4. PLEISTOCENE GLACIATION:

The pattern of marsh deposits on the plateau surface suggests glacial over-deepening of shear zones in the dolerite.

5. DOLERITE TRANSGRESSION:

Field evidence suggests a transgression of the lower surface of the dolerite mass along a line trending N.E. from the point 477E. 850N. North-west of this line the intruded rock is the Cluan formation while south-east of the line the intruded rock of the dolerite is the Newtown Formation.

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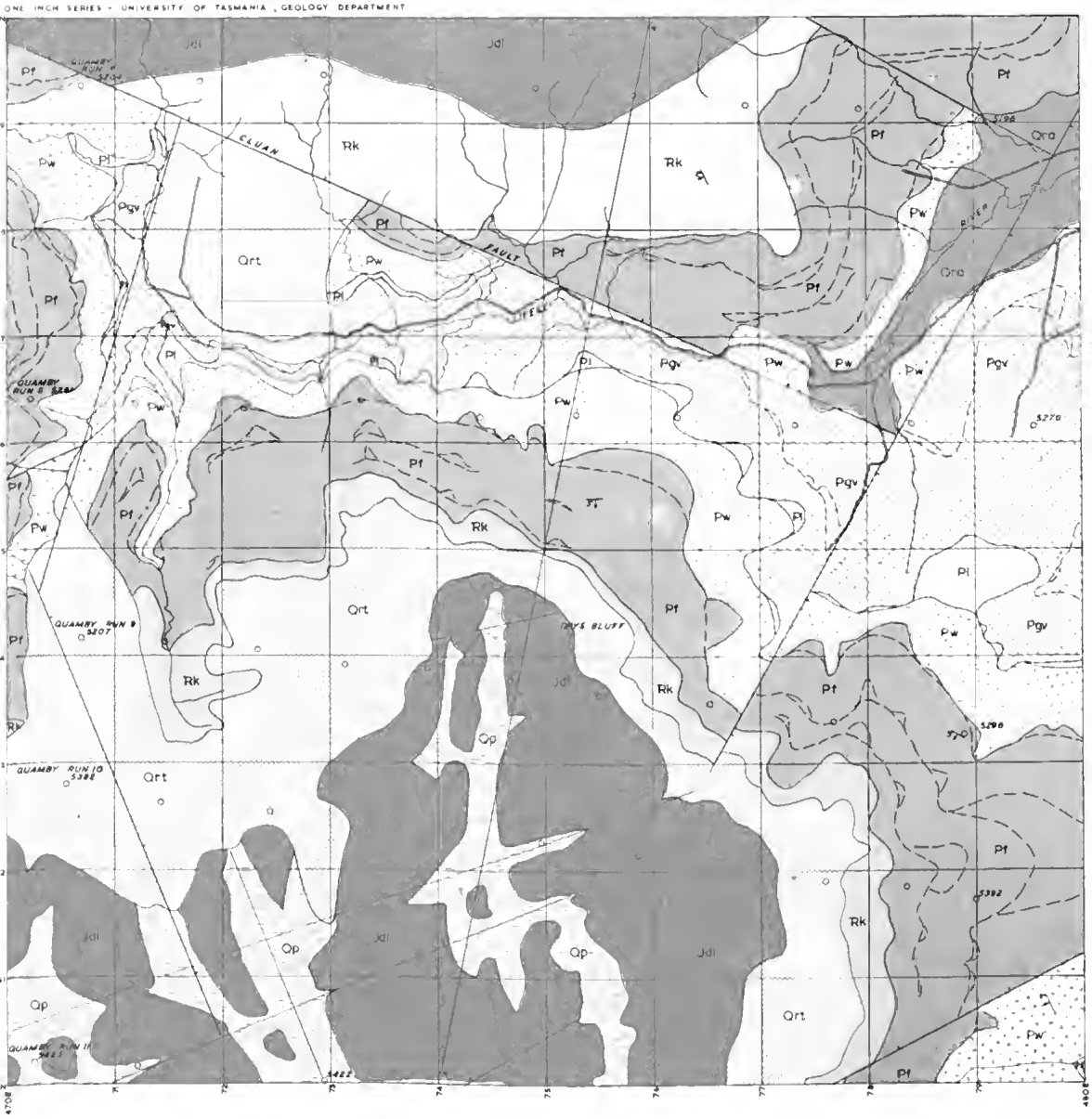

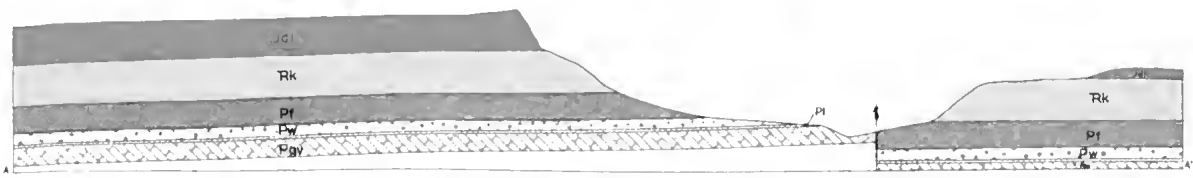

Quaternary System

- Qal — ALLUVIUM
- Qrt — TALUS
- Qp — MARSH DEPOSITS

Jurassic System

- Jd — DOLERITE

Triassic System

- Rk — KNOCKLOFTY SANDSTONES AND SHALES

Permian System

- Pf — PERTNTREE GROUP
- Pw — WOODBRIDGE GROUP
- Pl — LIFFEY GROUP
- Pgv — GOLDEN VALLEY GROUP

— SCALE —

0 1 2 MILES

0 1 2 3 4 5,000 10,000 FEET

KEY MAP SHOWING MAGNETIC VARIATION

Compilation from Aerial Photographs
Trigonometric Station Control by courtesy Forestry Dept
Origin of co-ordinates 400,000 yds West and 1,800,000 yds South of True Origin of Zone 7

MAPPED AND COMPILED BY
J.B.A.McKELLAR APRIL 1958

- FAULT
- LINEAR BOUNDARIES
- GROUP
- FORMATION
- FAULT BLOCK TILT
- ROAD
- VEHICULAR TRACK
- TRACK

MAP SQUARE 4786

1. BIBLIOGRAPHY:

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		Ross	Massive Sandstones	630'
		Jackey	Shales	140'
		DISCONFORMITY?		
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		Blackwood	Quortz Conglomerote	2'
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		Brumby	Fossiliferous Limestone, Marl	45'
		Quomby	Mudstone	330'
		Stockers	Tillitic Conglomerate	340'+

3. LOCALITIES OF SPECIAL INTEREST:

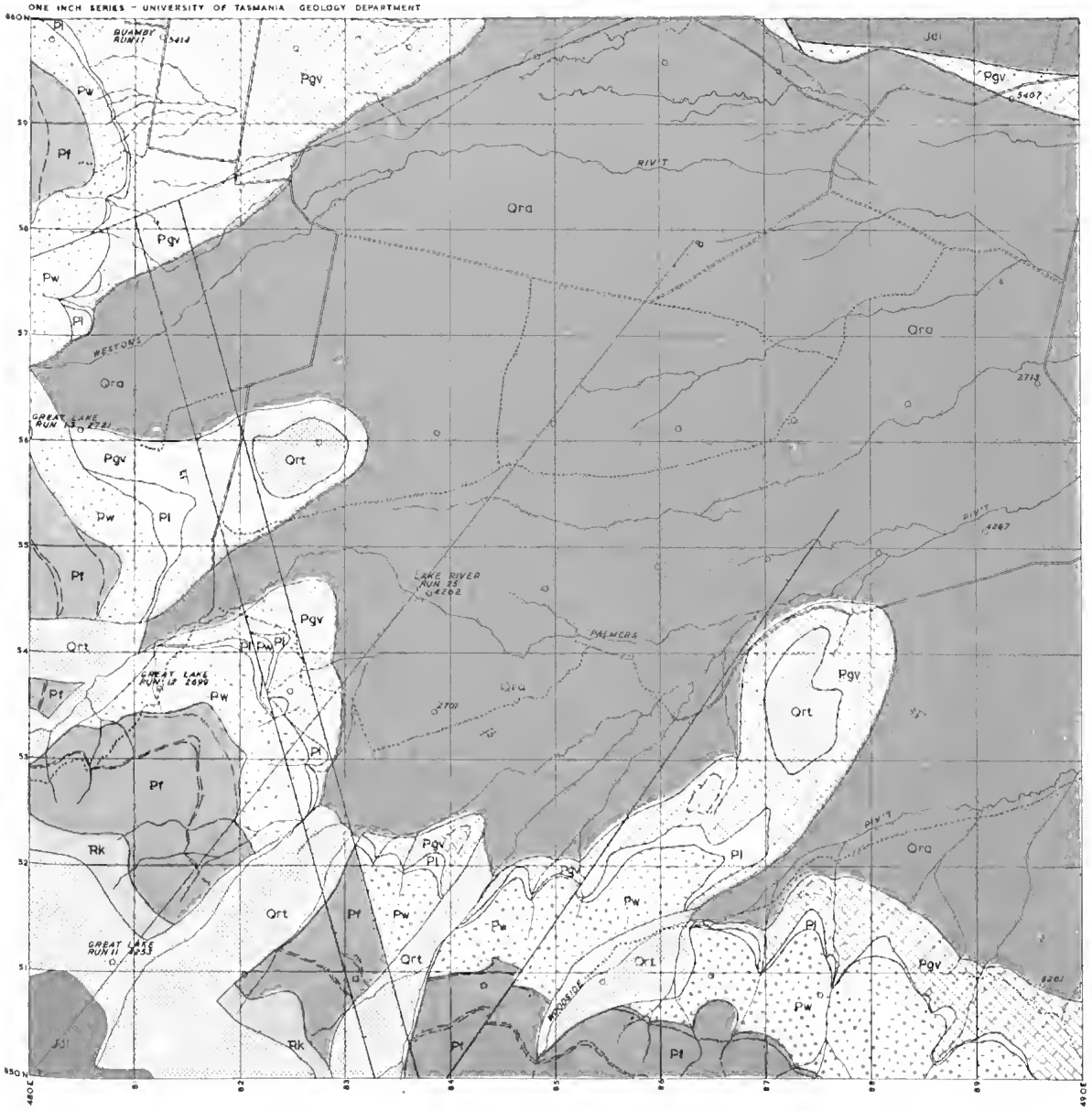
Liffey Group exposures in Liffey Valley.
Dolerite — sediment contact exposed 4757E. 8638N.
Brumby fossil locality — on track 4743E. 8674N.

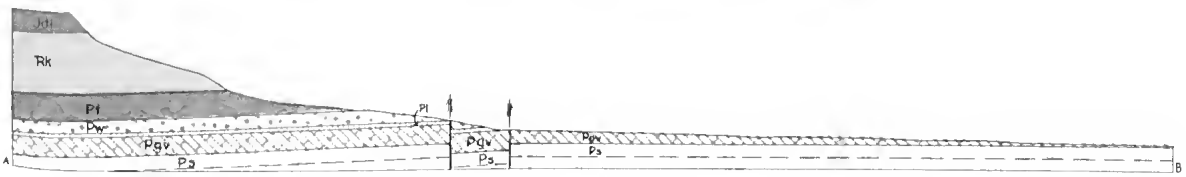
4. DOLERITE INTRUSION CENTRE:

Extensive talus deposits including large masses of dolerite in the region surrounding E472. N868 suggests the presence of a centre of intrusion of the dolerite.

5. SCARP FORMATION:

The originol Fault Scarp of the Cluan Fault has been transformed by stream erosion of the fault-zone into the opposing fault-line scorps (Resequent and Obsequent) of Drys Bluff and Cluan Tier.





Quaternary System
- Qra ALLUVIUM
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- Qp MARSH DEPOSITS

Jurassic System
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Triassic System
- Rk KNOCKLOFTY SANDSTONES AND SHALES

Permian System
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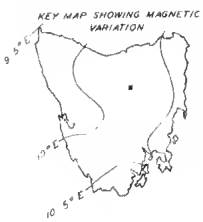
- Pw WOODBRIDGE GROUP
- Pl LIFFEY GROUP
- Pgv GOLDEN VALLEY GROUP
- Ps STOCKERS

— SCALE —
0 1 2 3 4 5,000 10,000
1 2 MILES

KEY MAP SHOWING MAGNETIC VARIATION



Compilation from Aerial Photographs.
Trigonometric Station Control by courtesy Hydro-Electric Comm.
Origin of co-ordinates 400,000 yds West and 1,800,000 yds South of True Origin of Zone 7

MAPPED AND COMPILED BY
J.B.A. McKELLAR APRIL 1936

- FAULT
- LINEAR BOUNDARIES
- GROUP
- FORMATION
- FAULT BLOCK TILT
- ROAD
- VEHICULAR TRACK
- TRACK

MAP SQUARE 4885

1. BIBLIOGRAPHY:

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		Brumby	Fossiliferous Limestone, Marl	45'
		Quamby	Mudstone	330'
		Stockers	Tillitic Conglomerate	340'+

3. LOCALITIES OF SPECIAL INTEREST:

Type Locality Palmer sandstone; waterfall 4816E. 8519N.
Type locality Kopanica Shales; waterfall 4803E. 8573N.
Dabool fossil locality; creek bed 4807E. 8543N.
Brumby Formation fossil locality; creek bed 4823E. 8546N.
Billop Formation fossil locality; bench 4875E. 8518N.
Stockers Formation exposure; creek bed 4878E. 8538N.

4. SCARP RETREAT:

Interesting features of the retreat of the Western Tiers Scarp are the broad, sloping, alluvium covered pediment, the talus "rivers" on the Tiers slopes and the talus "flotirons" about the points 4875E. 8535N. and 4825E. 8557N. Outward-hinging cliff blocks of dolerite at 4815E. 8501N. represent a significant mechanism of retreat.

5. DIAMOND DRILLING:

An extensive programme of diamond drilling by the Hydro-Electric Commission over the south-western portion of this sheet is recorded in Commission files.

GEOLOGY OF TASMANIA

ONE INCH SERIES - UNIVERSITY OF TASMANIA, GEOLOGY DEPARTMENT

MACRAE

Quaternary System

- Qra — ALLUVIUM
- Qrt — TALUS
- Qp — MARSH DEPOSITE

Jurassic System

- Jd — DOLERITE

Triassic System

- Rk — KNOCKLOFTY SANDSTONES AND SHALES

Permian System

- Pf — FERNTREE GROUP
- Pw — WOODBRIDGE GROUP
- Pl — LIFFEY GROUP
- Pgv — GOLDEN VALLEY GROUP

— SCALE —

0 1 2 3 4 5,000 10,000 2 MILES

KEY MAP SHOWING MAGNETIC VARIATION

Compilation from Aerial Photographs.
Trigonometric Station Control by courtesy Forestry Dept.
Origin of co-ordinates 400,000 yds West and 1,800,000 yds South of True Origin of Zone 7.

MAPPED AND COMPILED BY
J.B.A.McKELLAR APRIL 1956

- FAULT
- LINEAR
- BOUNDARIES
- GROUP
- FORMATION
- FAULT BLOCK TILT
- ROAD
- VEHICULAR TRACK
- TRACK

GEOLOGY OF MACRAE HILLS AREA

MAP SQUARE 4886

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2. STRATIGRAPHIC TABLE:

SYSTEM	GROUP	FORMATION	ROCK TYPE	THICKNESS
Recent to Pleistocene			Scree, Talus - Alluvium Glacial deposits	
		EROSION INTERVAL STRONG EPEIROGENY AND FAULTING PENEPLANATION AND UNCONFORMITY		
Jurassic			Dolerite	1000'+
Triassic		New Town	Sandstone, Shales, Coal	435'
		Tiers	Siltstone, Shale	385'
		Cluan	Sandstone, Siltstone	425'
		Ross	Massive Sandstones	630'
		Jackey	Shales	140'
		DISCONFORMITY?		
Permian	Ferntree	Eden	Mudstones	20'
		Blackwood	Quartz Conglomerate	2'
		Drys	Mudstone	350'
		Palmer	Sandstone	5'
		Springmount	Mudstone	280'
		Risdon	Sandstone	30'
	Woodbridge	Weston	Bryozoan Mudstone	30'
		Dobool	Brachiopod Sandstone	40'
		Meander	Mudstone	195'
	Liffey	Creekton	Wormcast Sandstone	10'
		Woodside	Sandstone	35'
		Kopanica	Shale and Sandstone	15'
		Flattop	Sandstone	30'
	Golden Valley	MacRae	Mudstone	115'
		Billop	Brachiopod Conglomerate	10'
		Brumby	Fossiliferous Limestone, Marl	45'
		Quamby	Mudstone	330'
		Stockers	Tillitic Conglomerate	340'+

3. LOCALITIES OF SPECIAL INTEREST:

Type Section of Brumby Formation; Steep Slope	4817E. 8618N.
Billop Formation fossil locality; Bench	4825E. 8628N.
"Sulphur Springs"; centre of open paddock	4837E. 8640N.

4. SCARP RETREAT:

The Tiers Fault produced a scorp with a relief of some 2000 feet. Subsequent retreat and erosion of this scorp has produced the resequent foult-line of the Western Tiers ond the obsequent fault-line scarp of MacRae Hills.

New Series, No. 8. 15th March, 1957.

RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

GEOLOGY OF THE DELORAINE-GOLDEN VALLEY AREA, TASMANIA

By

A. T. WELLS

(*Manuscript received 7th December, 1956*)

ABSTRACT

Seven thousand feet of isoelinally folded, eugeosynelinal, metamorphosed sediments and lavas of the Cambrian Dundas Group uneonformably overlie the erenulated Precambrian Davey Group quartzites and sehists. Asymmetrieally folded roeks of the Ordovieian Junee Group overlie the Dundas Group with an angular uneonformity. The oldest formation is the Owen Conglomerate which is followed by the fossiliferous Caroline Creek Sandstone. The Gordon Limestone forms scattered inliers in Permian roeks. Eighteen hundred feet of gently dipping, fossiliferous Permian sediments are followed disconformably by 500 feet of Triassie sandstone. The Permian has an important oil shale seam near the base of the section but it has not been exploited. Jurassic dolerite has intruded the Permian and Triassie sediments in the form of sills and dykes. Late Mesozoic peneplanation, Tertiary faulting trending north-west, followed by out-pourings of basalt have together with a reeent period of erosion combined to mould the present landscape, the topography having all the eharaeteristies of youth.

INTRODUCTION

The area (about 75 square miles) is to the south of, and ineludes portion of, the agrieulturally important Deloraine distriet. It is defined by the National grid eo-ordinates 460,000 and 470,000 yards east and 870,000 and 890,000 yards north. Deloraine is on the Bass Highway and the North-West Coast railway. The Lake Highway eommenees from Deloraine and runs diagonally to the south-western eorner of the area and, together with a branch road whieh runs from Golden Valley to Exton, provides ready aeeess. The northern part of the area is developed agrieulturally but the southern portion, espeeially the Cluan Tier region, is heavily timbered.

The horizontal eontrol for the slotted template layout of the one mile to one ineh maps were trigonometrieal stations, the eo-ordinates of which were supplied by eourtesy of the Forestry Department.

The area was first examined by Reid (1924) who eoneentrated ehiefly on the oil shale resourees. A report was also made on the oil shale resourees at Quamby Brook by Hills (1921).

Aeknowledgments are made to the staff of the Geology Department, University of Tasmania, for their assistanee during the eompilation of this paper whieh was originally part of a thesis submitted for the degree of Batehelor of Seienee with Honours in February, 1954. The thesis was made available to J. B. A. MeKellar, Hydro-Eleetrie Commission, who extended the work to the south and south-west. His paper on these areas is published in the *Reeords of the Queen Victoria Museum*.

PHYSIOGRAPHY

The northern part of the area is not more than 800 feet above sea level but Quamby Bluff, a peak standing out from the Great Western Tiers in the extreme southern seetion, rises to 4200 feet. The southern part has high relief.

Meehanical disintegration with periodie iee wedging is prevalent on the higher slopes of Quamby Bluff and Cluan Tier whieh have very little soil eover. Chemical weathering disintegrates the roeks of the lower areas, helped by the dense vegetation. The sandy soils derived from the Permian sediments are generally poor and eontrast with the rieh red elay soils developed on the Tertiary basalts. The alluvial soils of Stoekers Plain, in the Quamby Brook Valley and bordering the Meander River near Deloraine, are agrieulturally developed.

Springs are common in the Permian sediments and in the Tertiary basalts. In the latter, the site of the spring may be controlled by the junction of two flows where a scoriaceous bed acts as an acquifer. In the Permian sediments impermeable beds isolate the acquifer, so that each acquifer has its own independent water table. Springs have been formed above the impermeable limestone at the base of the Golden Valley Formation on the northern slopes of Quamby Bluff.

The drainage pattern is predominantly insequent where the streams traverse the Upper Palaeozoic, Mesozoic and Tertiary rocks. Elsewhere the major streams have been superimposed on the Lower Palaeozoic and Precambrian rocks, but some smaller streams are consequent on the structural trends. In the southern part of the area, streams are still high above base level and in their mountain tracts. The valleys are young and the rate of erosion is comparatively high. To the north the rivers are mostly in their plains tracts and the flow is considerably slower. Ox-bow lakes are common.

The present landscape has developed since the uplift after Permian and Triassic sedimentation. After injection of the Jurassic dolerite, erosion up to the Tertiary Period formed a peneplain on a dolerite surface. The peneplain was then broken by Tertiary block faulting. This caused rejuvenation of the upper reaches of the streams. The Pleistocene mountain glaciation has not been extensive enough to be recognisable in any form and probably merely assisted the erosive work of the streams. The latter gradually eroded their courses in the peneplain and were superimposed on the underlying older rocks. At the time of the outpourings of Tertiary basalts it is probable that, in general, the country immediately to the south was of greater altitude, this being necessary to account for the unconsolidated gravels which are commonly found on top of the basalt hills. The outpourings of the lavas do not appear to have radically altered the drainage system. Several cycles of erosion have affected the area, as indicated by entrenched meanders, interrupted profiles of streams, even crested mountain ridges and alluvial terraces. The cycle of river erosion is complicated by structural geology and the rock types present. The latter have produced streams that are practically at grade upstream from local base levels. In general the much dissected southern half of the area is in the youthful stage of the geomorphic cycle, but the northern half, which is composed predominantly of low rolling hills is in a later stage of youth in the same cycle.

STRATIGRAPHY

Precambrian

Davey Group

The complex regionally metamorphosed rocks of the Davey Group (Carey, 1945) crop out as a ridge trending north-west, on either side of the Lake Highway from the 6-mile post to Golden Valley. It is composed of pure white massive quartzites, banded foliated quartzites and highly sheared and contorted quartz mica schists. These rock types are those typically found in the Davey Group as exposed elsewhere in Tasmania.

Transecting and ladder veins are common. The schistosity consistently strikes approximately 130°. The intricate structures and paucity of outcrops prevented any subdivision of the group. At a road junction on the Lake Highway (874,600N-463,900E) there is a good exposure of foliated and banded quartzites with numerous ramifying quartz veins and what appear to be "ghosts" of rounded pebbles.

Cambrian System

Dundas Group

In this area the formations of the Dundas Group (Elliston, 1954) are as follows, in descending order:

	Thickness in feet
Scott Quartz Keratophyre	1200
Warner Siltstone	1900
Kentish Volcanics	1400
Thompson Formation	600
Calstock Formation	1900
Total	7000
Archer Formation (Possibly facies equivalent of part or all of the above sequence)	900

The formations comprise a group of variegated, sheared, much jointed, uniformly steeply dipping, poorly sorted eugeosynclinal sediments which include greywacke, subgreywacke, greywacke conglomerate, siltstone, sandstone, slate and volcanic breccia and lava flows. They crop out in a large area around Quamby Brook township and in a narrow strip between the ridges of the Davey Group rocks and Owen Conglomerate near the Lake Highway.

Calstock Formation

The Calstock Formation is defined as a formation of subgreywacke and slate conformably underlying the Thompson Formation. The base of the formation is not visible. The type area is at 877,000N-464,950E.

The formation comprises dark-brown to orange-brown slate, mottled pink and white coarse subgreywacke and pink to orange siltstone and sandstone. The formation exhibits extremes of lithology in very short distances.

The sheared subgreywacke is composed predominantly of subrounded, ellipsoidal chert grains and is exposed in a quarry at 878,350N-464,250E. It has been silicified and in section many pebbles show an outer annulus of fine silica with an unaltered core. The chert is grey to black in colour and shows a remarkable range in grainsize, the largest grains being 2 cm. across. Some chocolate-brown clay pellets are present and together with quartzite and quartz mica schist fragments, comprise about 3 per cent of the rock. The matrix is dark-brown and composed of fine quartz and sericite.

The siltstone exhibits rhythmic graded bedding and contains angular quartz and minor quartzite with a matrix of clay and fine quartz. A clay pellet or intraformational conglomerate contains disc-shaped, elongated, angular clay fragments, up to 2 cm. in diameter set in a grey-green matrix.

TABLE I

FIELD RECOGNITION AND DATA OF THE FORMATIONS OF THE DUNDAS GROUP

Type of Evidence	Calstock Formation	Thompson Formation	Kentish Volcanics	Scott Quartz Keratophyre	Warner Siltstone	Archer Formation
FRESH ROCK	Brown to orange-brown slate. Pink and pale grey subgreywackes with chert and clay fragments.	Blue-green slate and dark-green greywacke and greywacke conglomerate. Greywacke contains fragments of spilite, chert, quartzite, angular quartz, hornblende, feldspar and muscovite.	Dark-green spilite, light-green volcanic breccia.	Usually pink with some green chloritic phases.	Yellow-brown to orange siltstone. Minor grey subgreywacke.	Dense black slate. Blue-grey and mottled black and white subgreywacke which contains angular quartz and bent muscovite flakes together with quartzite, schist and slate fragments.
WEATHERED ROCK	Slate weathers to orange-brown with pink topsoil.	Grey-green and brown.	Grey green.	Pale pink, bleached appearance.	Pink to orange	Pale grey. Slate does not weather noticeably.
METAMORPHISM AND ALTERATION	Highly sheared in places. Numerous joint planes. Silicified.	Small faults, slight shearing.	Highly altered, sheared, chloritised, and albitised epidotised.	Slightly sheared, extensive albitisation and devitrification, some chloritisation.	Cleaved but relatively unaltered.	Slightly sheared and cleaved.
STRUCTURE AND TEXTURE	Graded bedding.	Graded bedding and slump structures.	Porphyritic with some chilled phases. Quartz epidote and chrysotile veins.	Porphyritic with some chilled phases. Pink phenocrysts of plagioclase and clear quartz in fine grained pink groundmass.	Laminated with graded and rhythmic bedding. More uniform sequence.	Rhythmic bedding of slate and subgreywacke.
PHYSIOGRAPHY	No distinctive form. Low hills.	Sharp low linear ridges.	No distinctive form, low sharp outcrops.	Low rounded hills.	Crops cut in Creek beds and forms low hills—no distinctive form.	Harder subgreywacke forms ridges, slate softer and crop out in creek beds.

The fragments vary greatly in size and shape and are mostly circular, but others are ellipsoidal and biconvex. The clay is pleochroic and contains some fine angular quartz. The matrix has subangular quartz and brown clay. The rock probably represents a desiccated clay lamina which was subsequently recemented.

From a disaggregated specimen of subgreywacke from this formation, 1·21 per cent heavy minerals were separated. A size analysis demonstrated the very poor sorting of the rock, 76 per cent of the grains lying between 0·149 and 1·003 mm. and 15 per cent of the grains being less than 0·074 mm. in diameter.

Thompson Formation

The Thompson Formation is defined as the slate and greywacke conformably overlain by the Warner Siltstone and conformably overlying the Colstock Formation. The type area is at Quamby Brook (876,050N-465,240E).

The formation comprises fine hard blue-grey slate, subgreywacke slate and poorly sorted blue-green to dark-blue calcareous greywacke with subordinate greywacke conglomerate and occasional beds of subgreywacke. The rocks vary considerably in lithology both through the section and along the strike.

The green slate contains traces of sulphides, mostly pyrrhotite. It is almost identical in composition to the subgreywacke slate except that minor amounts of feldspar are present and rock fragments are absent. The quartz particles have an average diameter of about 0·04 mm. The subgreywacke slate contains angular quartz of average diameter 0·01 mm. with muscovite, hornblende, quartzite and chert fragments, and a minor amount of epidote. The matrix is greenish-brown in colour.

The greywacke contains angular fragments of chloritised basic lava which are identical with the Kentish Volcanics. It is light grey-green in colour (exceptionally almost black) and massive. Some are dense fine-grained rocks but others have rock fragments up to 3 mm. in diameter. Subangular to angular quartz is present together with abundant subrounded rock fragments consisting of chert, quartzite, quartz mica schist, spilite and slate. Approximately 10 per cent feldspar and hornblende is present together with minor amounts of calcite, epidote, muscovite, magnetite, chlorite and leucoxene. The hornblende is in the form of subangular, roughly tabular grains, sometimes bent and up to 0·4 mm. long.

The greywacke conglomerate outcropping at 880,075N-463,900E shows rounded pebbles of dark-green spilite, large aggregates of white calcareous material and occasionally fragments of slate, quartzite and subgreywacke. The pebbles range up to 8 cm. in diameter. The rock may represent a reworked volcanic breccia and is partly tuffaceous as several small, glassy fragments were seen. The rock is chloritised and slightly sheared and often the matrix is indistinguishable from the grains. Where the former is distinguishable, it contains angular quartz up to 0·4 diameter, chert, sericite, epidote, chlorite, hornblende and leucoxene. In general the rock is dark-green in colour.

The minor subgreywackes are hard, dark-green rocks exhibiting rhythmic bedding. They are characterised by sparkling mica flakes and are often highly calcareous. Slump structures are present. Angular quartz with muscovite, chlorite, calcite and hornblende are the chief constituents with rock fragments sometimes almost as abundant as the quartz. The calcite is present as large granular aggregates and irregular interstitial masses and is probably secondary in origin.

Scott Quartz Keratophyre

The Scott Quartz Keratophyre is defined as the formation conformably overlying the Warner Siltstone. The top of the formation is concealed by the overlying unconformable Owen Conglomerate and it may interfinger with the Warner Siltstone. The type locality is at 882,650N-460,650E.

Macroscopically the rock is massive, flesh-pink to pinkish-brown, the colour being due to the abundant feldspar. The euhedral feldspar phenocrysts average 3 mm. in length. Few large irregular masses of dark-green secondary chlorite and small clusters of pyrite crystals are present. Some specimens show a dark-green matrix with clear glassy anhedral quartz phenocrysts, and pink, stout euhedral rectangular laths of feldspar.

The rock varies considerably in texture and grainsize, but microscopically the composition is relatively constant. Albite ($Ab_{98}An_2$) is the chief mineral constituent (60%): with quartz (25%), pennine (2%), biotite (10%), chlorite (2%), iron oxides and sulphides (1%). The formation could equally well be an acid extrusive, possibly a rhyolite or a sill. In places there is some semblance of a flow structure and homogeneous microcrystalline portions are present which may represent chilled margins, but no contacts with the underlying formation were visible. Irregular joints are common but there are no distinctive traceable lineaments that could represent the junction of flows.

A keratophyre tuff was found about ½-mile north-east of Quamby Brook township. It is a dense sheared rock with a dark-green chloritised matrix. It contains fragments of white feldspar, clear quartz up to 5 mm. in diameter, quartzite and chert. Incomplete crystal outlines are still preserved on the large grains of feldspar which are considerably altered to sericite.

Kentish Volcanics

The Kentish Volcanics are defined as the formation of basic lavas and associated pyroclastics interfingering with the Warner Siltstone. The type locality is at Quamby Brook (874,600-465,950E).

The formation comprises dark to light-green sheared chloritised and epidotised spilite and volcanic breccia, the latter showing large angular chloritised fragments of spilite. Occasionally pyrogenetic crystals of white plagioclase are visible in the spilite, and chlorite and epidote-quartz veins commonly traverse the rock. No contacts of the lava with the country rock or structures common to lava flows are present because of the shearing and alteration the rock has undergone. The breccia indicates explosive vulcanism. To the north-west beyond a point roughly at 877,740N-462,950E the lavas and breccias are absent; this probably indicates the margin of the flow.

The spilite is composed predominantly of albite, oligoclase (50%), epidote (15%), chlorite (20%), quartz (5%), and pyroxene (5%), with magnetite, pennine, leucoxene, sericite and limonitic material composing 5 per cent of the rock. Phenocrysts

of feldspar and a little pyroxene are set in a dark-green matrix composed almost entirely of feldspar laths with interstitial chlorite and magnetite. Many of the laths have been bent, crushed and re-oriented and extensively sericitised. Deuteric or late magmatic epidote penetrates the laths along fractures and joints. The small quartz veins often show replacement borders. The rock is unusual in that it is porphyritic and shows no signs of being amygdaloidal. It represents a soda-rich basalt, the pyroxene being altered to chlorite and serpentine together with other abundant alteration products of pyrogenetic minerals.

The volcanic breccia consists mainly of angular fragments with some subrounded fragments. The fragments range up to 20 mm. in diameter and consist predominantly of spilite altered to a mass of chlorite, calcite and epidote with remnants of feldspar and pyroxene. Rare chert grains are present. The matrix consists of dull-green chloritic materials, epidote and disintegrated feldspar grains.

Warner Siltstone

The Warner Siltstone is defined as the formation of siltstone with subordinate slate and subgreywacke lying conformably between the Archer Formation above and the Thompson Formation below. It is transgressive and overlies the Davey Group with an angular unconformity. The type area is on the Quamby Brook road about 3 miles south-east from Deloraine (81,600N-462,930E). Nowhere is there a complete uninterrupted sequence.

The formation consists predominantly of laminated soft rhythmically bedded pink to red-brown siltstone with interbedded well-jointed green-grown slate and some laminae of hard blue-grey slate. A coarse subgreywacke near the centre of the formation is a good marker horizon in this formation on the south-western limb of the anticline and is probably contemporaneous with a coarser subgreywacke outcropping along the south-western margin of the Scott Quartz Keratophyre. Petrographically the subgreywacke contains angular quartz averaging 0·04 mm. in diameter and rock fragments, quartzite, some quartz mica schist and chert. Few bent muscovite flakes are present. In the hand specimen few rounded quartzite pebbles up to 5 mm. across are visible.

A slide of the silstones shows pink laminae of coarse-grained silt alternating with finer dark grey-brown laminae; gradation between the two is common. The laminae vary from a fraction of a millimetre to 4 mm. thick. The quartz grains throughout are angular; they average 0·02 mm. in diameter in the finer-grained laminae and 0·05 mm. in the coarser laminae. Sericite and clay minerals increase in proportion in the finer laminae. Muscovite flakes are present throughout, but are not always parallel to the lamination planes.

Archer Formation

The Archer Formation consists of subgreywacke and slate with subordinate greywacke and greywacke breccia. It is defined as the formation conformably overlying the Warner Siltstone and rests with angular unconformity against the Davey Group rocks. The formation is exposed at only one locality (874,780N-464,320E).

The uppermost beds are very coarse with angular fragments up to 5 cm. in diameter together with rare well-rounded quartz pebbles. Pyritic slate is predominant near the base of the formation. The formation was not found outcropping on the margin of the Davey Group rocks to the north-west. It may be equivalent to all or part of the Dundas Group.

The subgreywacke is flaggy, hard and blue-grey where fresh. In thin section it consists of large angular fragments of the metamorphic variety of quartz (75%) showing graphic intergrowth, rock fragments (20%) including angular quartzite, quartz mica schist, dark-grey slate and many bent muscovite flakes (5%). The angular quartz grains of the matrix average 0·3 mm. in diameter. A few well-rounded quartz pebbles up to 2 cm. in diameter are present in the rock. Many of the subgreywacke specimens have a highly calcareous cement.

The greywacke contain up to 15 per cent feldspar not including the aggregates of feldspathic material composing the fragments. Chert, quartzite and quartz grains are also present with subordinate epidote, chlorite, calcite, magnetite and ferromagnesian minerals.

A thin section was cut of a specimen of rhythmically bedded siltstone from this formation. This shows alternating bands of sand and silt, the proportion of clay minerals being higher in the finer bands. In the coarser bands quartz and muscovite are present, the flakes of the latter not always parallel to the bedding planes. Some of the flakes are 0·2 mm. long, averaging about 0·05 mm. The quartz particles are about 0·04 mm. across with some up to 0·18 mm. but these are comparatively rare.

The proportion of sericitic material increases in the finer grades, the flakes being, on the average, 0·03 mm. long and 0·01 mm. wide. The quartz grains average about 0·02 mm. in diameter, the largest being 0·06 mm. Few opaque grains are present. A small amount of chloritic material is present but no feldspar grains were detected. A detailed microscopic analysis normal to the bedding is shown below in text figure I.

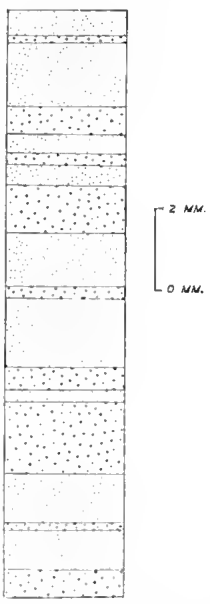

FIG. I.—Rhymic alternation of coarse and fine bands in the Archer Subgreywacke and Slate. Scale: 5 millimetres = 1 inch.

This sequence shows the rhythmic bedding, but no major cycle is apparent. Gradation between the bands is common.

Discussion on Dundas Group

No fossils were found in rocks of the Dundas Group. They rest unconformably on the Precambrian Davey Group schists and are unconformably overlain by the Ordovician Junee Group and therefore correlated with similar eugeosynclinal Middle to Upper Cambrian rocks in Tasmania. The rocks indicate rapid deposition in shallow water with very little transportation of the sediments, and the vicinity of high mountain ranges. The absence of current bedding, the presence of coarse graded deposits, clay pellets, rapid textural variation and poor sorting indicate the loads were carried in suspension. The volume of sediment is too great to be accounted for by deposition in one season and the material must have accumulated and finally redeposited in a graded bed at the present site. (See text figure II.) Turbidity currents of high

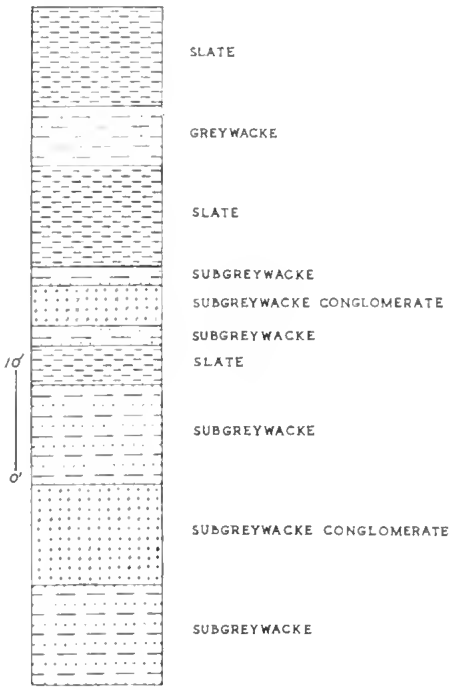

FIG. II.—Rhymic alternation in the Archer Subgreywacke and Slate.

Scale: 20 feet = 1 inch.

density (Kuenen *et al*, 1950, 1952, 1953) explain many features of these deposits. The currents may be derived from the slump of material down a slope on which the sediment is deposited, earthquakes or storms causing the instability of the mass. In this way lutite can be deposited simultaneously with larger particles and may cover a very wide area. Very large blocks and unabraded clay fragments can be carried.

The classification of Tyrell (1933) adequately describes the greywackes common in the Dundas Group. Scott (1954) discusses the petrology of Cambrian volcanics similar to those found in this area.

ORDOVICIAN SYSTEM

Junee Group

The formations of the Junee Group in descending order are:—

	Thickness in feet
Gordon Limestone	1000
Caroline Creek Sandstone	1000
Owen Conglomerate	300

Owen Conglomerate

The Owen Conglomerate (Officer, Balfour and Hogg, 1895) crops out as two narrow ridges flanking the Lake Highway from the 6-mile post to Golden Valley and as a hogback 2-miles south of Deloraine. The formation consists of white to pink silicified oligomictic conglomerate with subrounded to rounded pebbles averaging 5 cm. in diameter, the maximum size seen being 16 cm. in diameter. The pebbles are predominantly quartzite with rare quartz mica schist and slate. The matrix is a medium-grained white sand but the silicification makes it impossible to separate the pebbles from the matrix. In thin section the grains have minutely irregular boundaries and the silicification has produced a graphic intergrowth of quartz in the matrix.

The conglomerate is interbedded with silicified flaggy pink to white sandstone which is predominant near the top of the formation. Tubicolar annelid casts, cf. *Scolithus*, occur in the sandstone of the most northerly exposure. A deeply weathered profile of the conglomerate is present at 883,000N-461,260E. Here a pebble showing blue kyanite and golden-brown mica in a quartzite was found.

The thickness of the formation is about 300 feet and is probably a shallow marine deposit at the base of cliffs of Precambrian quartzite. Outcrops of the conglomerate appear to be thicker on the flanks of these basal rocks. The Owen Conglomerate is Tremadocian assuming that it is synchronous throughout the State.

Caroline Creek Sandstone

The Caroline Creek Sandstone (Caroline Creek beds of Etheridge, 1883) outcrops on Stockers Plain where it conformably overlies the Owen Conglomerate and is conformably overlain by the Gordon Limestone. It consists of approximately 1000 feet of amber to pale-yellow, friable, porous sandstone but in places is silicified and flaggy. It is well sorted with subrounded quartz grains and few muscovite flakes. It is fossiliferous and contains cephalopods, gastropods and *Tritoechia careyi* Brown, a brachiopod so far recorded only from the Florentine Valley Mudstone. The genus is restricted to the Lower Ordovician.

Gordon Limestone

Only two small exposures of limestone correlated with the Gordon Limestone (Gordon Limestone of Gould, 1866) are present. One outcrops on the eastern extremity of Stockers Plain (874-560N-463,120E) where it conformably overlies the Caroline Creek Sandstone and is overlain unconformably by Permian rocks to the south-east. It also outcrops on Cameron's property (460,470N-464,460E) but no contacts with surrounding rocks are visible. The limestone has been quarried at both sites. The minimum thickness of the formation is about 1000 feet.

The limestone at Stockers Plain is light blue-grey, sheared, foliated and crenulated. The rock is schistose and is cut by small faults and calcite veins up to 10 cm. wide. The calcite is parallel to the bedding and occasionally forms lensoid bodies. A slice of the rock shows indistinct fossils with echinoderm plates and cross sections of trilobite exoskeletons. The etched surface of the rock showed a doubtful bryozoan and several ostracods. About 3 per cent detrital angular quartz is visible and stylolites are common. The cement of the limestone is partly bituminous and an unsaturated tarry residue was extracted with xylene. Several sink holes are present on Stockers Plain north-west of the quarry, undoubtedly formed in this limestone.

The limestone from Cameron's property exhibits ramifying calcite veins, stylolites and slickensided surfaces. The rock is almost black in colour.

The Gordon Limestone was deposited in shallow seas bordered by low-lying land surfaces from which very little clastic material was derived. The trilobite and crinoid remains suggest deposition near the centre of the continental shelf where these forms would normally abound. By lithological correlation and stratigraphic position it is assigned an Upper Ordovician age.

Permian System

The Permian sediments are confined to the southern portion of the area where they are protected from erosion by sills of Jurassic dolerite. The total thickness of the System at Quamby Bluff is 1830 feet. Several facies occur in some of the formations in the System. The formations in the type section measured on the northern slopes of Quamby Bluff are as follows, in descending order:—

	Thickness in feet
Ferntree Mudstone	650
Woodbridge Formation	335
Liffey Sandstone	250
Golden Valley Formation	200
Quamby Mudstone	350
Stockers Tillite	45

This section is presented in detail as a columnar section in text figure III.

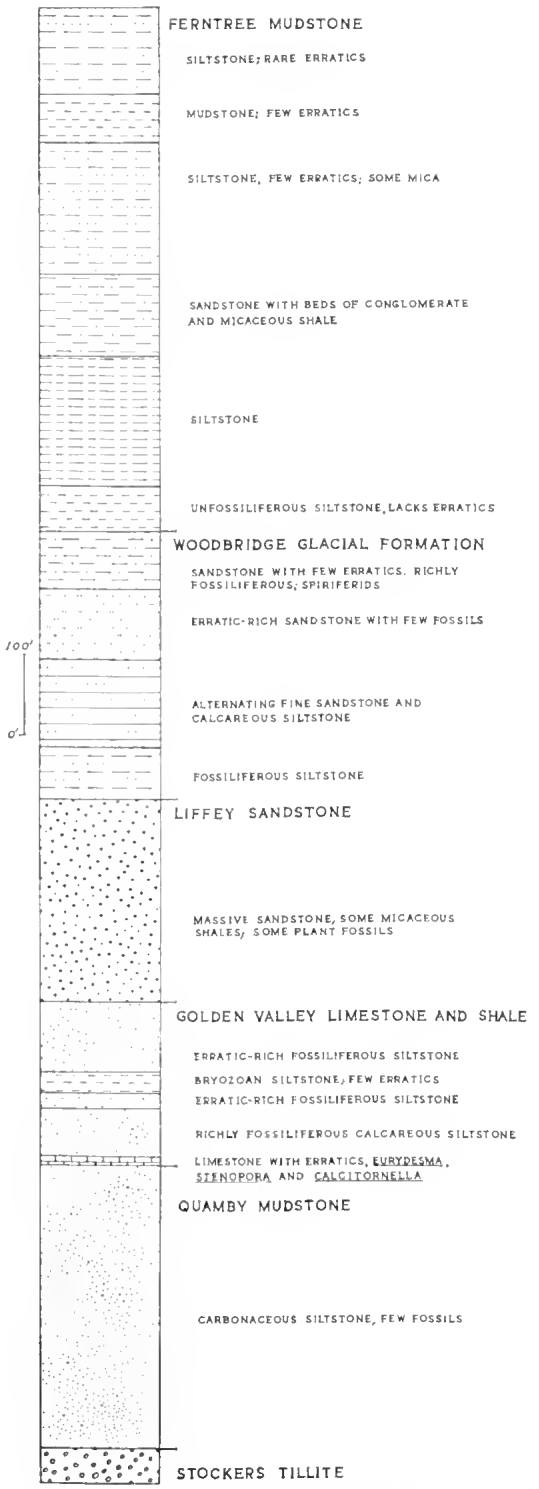

Fig. III.—Summary of the Permian stratigraphy at Golden Valley.
Scale: 250 feet = 1 inch.

Stockers Tillite

The Stockers Tillite is defined as the basal formation of the Permian System overlying the Jurec Group unconformably and overlain conformably by the Quamby Mudstone. The type locality is at the south-eastern extension of Stocker's Plain (co-ordinates 874·5N-646·3E).

It is a coarse, poorly sorted, unfossiliferous rudite with a calcareous cement. It is grey-brown with subangular to subrounded and rarely rounded boulders up to 25 cm. in diameter but varying greatly in size. The boulders are composed chiefly of the underlying Gordon Limestone, some quartz, quartzite, quartz schist and slate and compose 20 per cent of the rock. They are set in a fine matrix of quartz, clay and calcite. The surface of the boulders are frosted and dull but no striated surfaces were found. The properties of the rock agree with the salient features of glacial till given by Pettijohn (1949). The formation is 45 feet thick and grades imperceptibly into the Quamby Mudstone. The formation may be correlated with the basal glaciation formation common to the Permian System at many localities in Northern Tasmania.

Quamby Mudstone

The Quamby Mudstone is defined as the formation lying conformably between the Stockers Tillite below and the Golden Valley Formation above on the northern slopes of Quamby Bluff (co-ordinates 874·5N-463E).

The rock is a blue-grey mudstone with occasional dark-grey carbonaceous bands. It is flaggy and prone to spheroidal weathering. Rounded pebbles of quartz, quartzite and black chert up to 3 cm. in diameter are sparsely distributed through the mudstone. A few unidentifiable fossil fragments are present and the cement is partly calcareous. The formation is 350 feet thick and may be coeval with the lower part of the Inglis Stage of the Precolenna sequence and the lower part of the Achilles Stage of the Mt. Pelion section.

Golden Valley Formation

The Golden Valley Formation is defined as the formation lying conformably between the Quamby Mudstone below and the Liffey Sandstone above. It is 200 feet thick and consists of richly fossiliferous limestone, calcareous siltstone, shale and fine sandstone. This formation is named after Golden Valley in which it occurs. The type area has the co-ordinates 874N-463·9E.

The basal massive coquina limestone, which is up to 20 feet thick, contains abundant erratics of quartz, quartzite and banded schist up to 30 cm. in diameter and abundant spiriferids, fenestellids, gastropods and pelecypods. It contains a small amount of detrital quartz, the organic remains and calcite cement comprising about 60 per cent of the rock. Secondary quartz as radiating spherulites of chalcedony compose about 15 per cent of the rock and the remainder is made up of rock fragments. The limestone is allochthonous in origin.

The limestone grades upwards into light-brown calcareous, fossiliferous shales with abundant fenestellids. Erratics are still abundant. The top beds are coarser, poorly sorted shale and fine sandstone, pale-grey and blue-grey in colour, light-brown and yellow on weathered surfaces. Rare large erratics are present and fossils plentiful.

Fossils from the formation, determined by Banks include—*Deltopecten limaeformis?*, *Spirifer avicula?*, *Martiniopsis subradiata*, *Martiniopsis oviformis*, *Platyschisma ocula*, *Eurydesma cordatum*, *Enomphalus*, *Stenopora tasmaniensis?*, *Aviculopecten*, *Polypora*, and the foraminifera *Calcitornella stephensi*. The latter indicates correlation with the Darlington Limestone (Banks, 1957) at Karoola, Maria Island, Woody Island and in several places in the Hobart area. The formation was deposited in a shallow sea and the abundant erratics indicate the presence of continental glaciers on neighbouring land surfaces.

Liffey Sandstone

The Liffey Sandstone is defined as the formation which lies conformably between the Woodbridge Formation above and the Golden Valley Formation below. This formation is named after the Liffey River on which it outcrops. The type area for the formation is, however, on and beside the Glencoe Road, Golden Valley, with the co-ordinates 873·5N-463·7E.

The formation is 250 feet thick and consists of pale-brown and rarely pink massive sandstone with sparkling quartz and some interbedded micaceous shale. It is cross-bedded and has rare limonite concretions. Some thin carbonaceous laminae and plant remains may indicate fresh water deposition. A thin section shows subrounded quartz grains and some quartzite and quartz mica schist. The grains are tightly packed and the total volume of cement is less than 3 per cent. A sample of the sandstone contained 0·39 per cent heavy minerals and 40 per cent of these were magnetite, the remainder being ilmenite and hematite. The formation may correspond to the sandstone enclosing the Mt. Pelion Coal Measures.

Woodbridge Formation

The Woodbridge Formation (Prider, 1948) is 335 feet thick and lies conformably between the Liffey Sandstone below and the Ferntree Mudstone above. It consists of poorly sorted shaly and flaggy, fine to coarse, grey-brown and yellow lutites and interbedded fine arenites. Erratics are abundant in restricted horizons including subangular to subrounded ellipsoidal quartzite, mica schist and slate pebbles. The quartz grains are subangular to angular and the abundant matrix is composed of rock flour and clay but is occasionally calcareous. Occasional grains of fresh feldspar, mostly the acid variety of plagioclase are present.

A richly fossiliferous bed 50 feet from the top of the formation is a medium-grained arenite with occasional erratics and is a good marker horizon.

Fossils from this bed, determined by Banks include, *Dielasma hastata, Martiniopsis oviformis, Martiniopsis subradiata, Platyschisma ocula* and *Spirifer vespertilio?*.

The formation was deposited in a shallow sea with an adjacent low glaciated shore line.

Ferntree Mudstone

The Ferntree Mudstone (Ferntree Mudstones of Carey and Henderson, 1945) is 650 feet thick. It overlies the Woodbridge Formation conformably and is disconformably overlain by the Triassic sandstone and shale. The formation consists of siltstone, mudstone, argillite and sandstone, in which so far no fossils have been found. There are several minor poorly sorted beds rich in angular erratics, but otherwise only sparse large erratics are found. A siliceous cement is present in the coarser arenites but in the lutites it is argillaceous. The latter have an isotropic fabric and are blue-grey, brown and sometimes black when unweathered. The weathered rock is invariably cream-coloured. Bedding is both shaly and flaggy. The hard argillites contain up to 7 per cent angular quartz averaging 0·01 mm. in diameter, with subordinate rock fragments, muscovite, magnetite, and up to 3 per cent feldspar. The matrix consists of clay, chlorite grains and rock flour.

Three hundred and twenty feet from the base of the formation there is a massive, siliceous sandstone member 165 feet thick which contains beds of ill-sorted round and discoidal pebbles chiefly of quartz and quartzite. The sandstone contains angular quartz and is poorly sorted. It is resistant to weathering and stands out as a prominent ledge on the hill slopes. Although it does not contain a high percentage of feldspar it is lithologically similar to the Risdon Sandstone.

The formation was deposited under conditions unsuitable for marine life but where carbonaceous matter, which is responsible for the colour of the argillites, could accumulate. Incursions of glaciers on neighbouring land surfaces produced the beds rich in erratics.

PERMIAN SYSTEM IN ADJACENT SECTIONS

The base of the Permian System at the south end of the Quamby Brook Valley crops out at 874,260N-465,720E. The Stockers Tillite is absent and the Quamby Mudstone is 532 feet thick. The Bakes Oil Shale Member which is 5 feet thick occurs 65 feet from the base of the Quamby Mudstone. The oil shale has angular quartz of 0·025 mm. average diameter, and subordinate rock fragments, magnetite, sericite and traces of calcite and feldspar. In plan the abundant circular spore cases average 0·4 mm. in diameter. The Golden Valley Formation forms a distinct ridge on the surrounding hills and is overlain by a dolerite sill. Incomplete sections of the Liffey Sandstone overlying the Golden Valley Formation are occasionally present beneath the sill. This section is presented in columnar form as text figure IV.

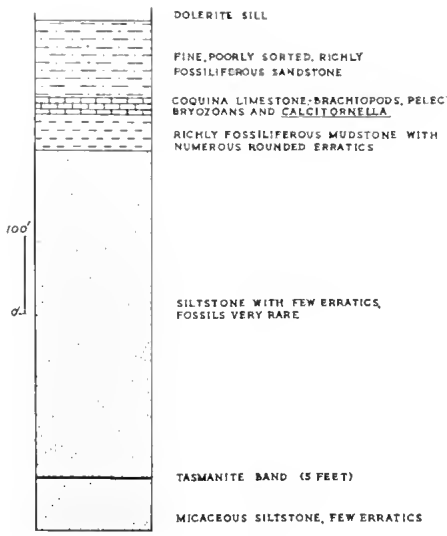

FIG. IV.—Summary of the Permian section at Quamby Brook.

Scale: 250 feet = 1 inch.

In the southern part of the area on the Liffey Road there are fossiliferous interbedded shales and tillitic mudstone and sandstone of the Woodbridge Formation. The grey-brown, poorly sorted, richly fossiliferous sandstone 50 feet from the top of the formation is easily recognized here. This formation is overlain by blue-grey and grey-brown lutite of the Ferntree Mudstone. A prominent bench of hard tillitic sandstone about 200 feet above the top of the Woodbridge Formation occurs on the hill slopes to the west of the Liffey Road. It can be traced to the north and gradually swings west and crosses the Lake Highway at 870,530N-465,630E.

The limestone of the Golden Valley Formation is absent in the Permian section on the south-western slopes of Quamby Bluff. The Liffey Sandstone forms conspicuous bluffs and the overlying sequence of Woodbridge Formation and Ferntree Mudstone presents a terraced appearance due to the alternation of sandstone and mudstone beds.

The Liffey Sandstone crops out in the "Early Rises" area and to the south-west is overlain by mudstone with erratics which probably represent the Woodbridge Formation. No fossils were found, however, and it was impossible to differentiate it from the overlying grey-blue mudstone underlying the Triassic sandstone.

Five hundred feet of the Ferntree Mudstone crop out at 880,850N-470,000E. The sediments consist of unfossiliferous grey mudstone and siltstone with few angular erratics and are overlain by Triassic sandstone.

Scattered boulders of Permian mudstone outcrop at 880,670N-464,920E. It is lithologically similar to the Ferntree Mudstone.

Voisey (1938) places the Tasmanite Stage above the Lower Latrobe Stage. It appears certain, however, that the Golden Valley Formation, the Liffey

Sandstone and the Woodbridge Formation are equivalent to the Lower Latrobe Stage, the freshwater Mersey Coal Measures and the Upper Latrobe Stage respectively. In this case the Tasmanite Stage is below the Lower Latrobe Stage. Recent work tends to disprove the correlation of the oil shale horizon with the Mersey Coal Measures and suggests that the Tasmanite Stage occurs 300-400 feet below the coal horizon.

Triassic System

Knocklofty Sandstone and Shale

The friable sandstone and shale lying disconformably on the Permian sediments are correlated with the Knecklofty Sandstone and Shale (Knocklofty Sandstones of Johnston and Morton, 1890) on stratigraphic position and lithological similarity. The formation invariably crops out at the margin of the dolerite sills and the massive sandstones form steep cliffs on the northern slopes of Quamby Bluff. The contact with the Permian rocks is marked by a hard light-brown breccia bed which invariably marks the base of the Triassic System. The breccia contains subangular quartz and quartzite fragments up to 5 mm. in diameter with a siliceous isotropic cement.

The amber to pale-brown sandstone is massive, current-bedded, with rare thin fine conglomerate laminae, limonite concretions, and green and brown clay pellets. It contains subangular quartz grains (80%), about 10 per cent rock fragments, and few microline, plagioclase and chlorite grains. The rock is well sorted and compacted. No fossils were found. Rarely the rock is an intense chocolate-brown.

The micaceous shale is prominent toward the top of the formation and has been injected by dolerite sills in many places. The shale is particularly susceptible to erosion. It is 100 feet thick and the underlying sandstone 400 feet. There is no evidence of the overlying feldspathic sandstone which is found in the Western Tiers.

Approximately 300 feet of the Knocklofty Sandstone and Shale underlie the dolerite 3 miles south-south-east of Exton and is 150 feet thick under the dolerite south of the Eden Rivulet. Scattered boulders of the basal breccia were found at both localities. On the south-western slopes of Quamby Bluff high bluffs of the massive sandstone are present and current bedding is well developed. The sets are generally 23 cm. wide, the laminae about 1 cm. thick, the top set laminae being absent.

A sample of the massive sandstone contained 0·198% heavy minerals which is considerably less than that found in the Liffey Sandstone. The minerals consisted of tourmaline, ilmenite, melanite and rare zircon. Only one or two grains of magnetic minerals were separated. A sample of shale from this formation contained only 0·027% heavy minerals.

Jurassic System

Dolerite

The dolerite occurs as concordant and discordant sills and feeder dykes which cover about 30 per cent of the land surface within the area. It caps Quamby Bluff, Cluan Tier and the hills north of "Early Riscs", "Ashley" and Exton. The Quamby sill is in the vicinity of 600 feet thick and the Cluan sill about 400 feet. The sills forming the lower lying hills in the central, eastern and northern sections are not much more than 200 feet thick. The depth of intrusion of the dolerite varied greatly. About 500 feet of Upper Triassic sandstone originally overlaid the Quamby sill and about 2000 feet of sediments overlaid some portions of the Cluan sill.

The dolerite is generally medium-grained, but the rock composing the dyke 250 feet wide that crosses the Lake Highway is very fine-grained. The latter variety is dark greenish-black but the normal massive variety is blue-grey. The contact of the dolerite with the underlying Triassic shale was seen at 871,380N-464,040E. The dolerite here is extremely fine-grained and exhibits remnants of plagioclase and augite altered to a mass of calcite and chlorite. Several quartz grains are incorporated in the dolerite but the underlying shale shows no visible hornfelsing. The contact is very irregular.

Vertical columnar jointing is common in dolerite cliffs of Quamby Bluff and, in a quarry 1¼ miles north of Exton the closely spaced vertical jointing has imparted a laminated appearance to the rock. Sheaf-like, radiating zeolite is common in the joints.

The dolerite is undoubtedly synchronous with the widespread dolerite sills throughout the State.

Tertiary System

Ashley Basalt, Exton Member and Tertiary River Gravels.

The Ashley Basalt is defined as all those fine-grained basalts which occur in the area around Ashley (co-ordinates 886·6N-464·4E. The Exton member is defined as a flow of coarse-grained, porphyritic basalt which occurs about three-quarters of a mile south-east of Exton (co-ordinates 886N-468E). Both are Tertiary in age.

Large outpourings of this volcanic rock are present in the northern half of the area. The total thickness of the flows is in the vicinity of 300 feet. The more common fine-grained, dense, dark blue-grey rock has been called the Ashley Basalt. There is evidence for a porphyritic, coarser-grained flow and this has been called the Exton Member which is left as remnants generally capping small hills. About ¼-mile north of Deloraine on the Reedy Marsh road there is a cutting in the Ashley basalt showing a deeply weathered amygdaloidal capping. The amygdules are filled either with chabazite or a resinous amber clay which is probably nontronite. They are up to 15 mm. long and 6 mm. wide. The fresh greenish-black dense basalt contains phenocrysts of olivine, crystals of labradorite, augite and subordinate magnetite and nepheline. Olivine as small grains in the matrix is rare. Basalt from the Exton Member has rare large phenocrysts of olivine, the larger percentage being as smaller grains in the groundmass.

No tuffaceous deposits or signs of explosive vulcanism are associated with the basalt. To the north the basalt has overlapped the dolerite sill and to the south-west laps against the Owen Conglomerate.

In places a lateritic podsol has developed on the basalt and deposits up to 20 feet thick of pisolitic ironstone are present. Very large blocks of a highly silieeous conglomerate overlie this ironstone ½-mile west-south-west of Exton. The boulders have a thin crust of ironstone attached and the soil of the surrounding hill slopes eontains abundant rounded pebbles. The conglomerate may represent an interbasaltic gravel possibly silicified by overlying flows.

A restricted age cannot be assigned to the basalt but is correlated with Tertiary basalts elsewhere in Tasmania which in some places overlie Lower Tertiary leaf beds.

Recent Series

Recent deposits include river alluvium and gravels, mountain rock flows and talus, and residual and local weathering products. The slopes of Quamby Bluff are covered with talus consisting of angular blocks of dolerite up to 20 feet across. Aided by the slope of the terrain, the weight of the blocks, and lubricated by the underlying clayey sediments, the talus has flowed down the mountain side. The leading margin of each flow has buckled up forming semicireular ridges up to 20 feet high and probably marks successive slumps of the material.

Residual depesits up to 20 feet thick occur on the Owen Conglomerate and have been quarried in several places. A bedded gravel deposit oceurs in a quarry near the 11-mile post on the Lake Highway. The deposit has an initial dip of about 20° and is composed of angular fragments of Permian mudstone. It has formed from serec washed from the surrounding hill slopes.

STRUCTURAL GEOLOGY

Regionally, the area represents the site of sedimentation on the margin of the craton of Preeambrian rocks, the Tyennan Bloek. Here the Dundas Group rocks are of great thickness and were deposited on the axis of the Porphyroid Anticlinorium (Carey, 1953). The Ordovieian rocks (Junee Group) were laid down after the intervention of the Tyennan Orogeny, the Tyennan uplift probably oceurring at the same time as Dundas sedimentation. The Tabberabberan Orogeny (Devonian) folded the Ordovician and older rocks and intense hydrothermal metamorphism and mineralization eecurred in the Porphyroid Antielinorium.

Hence, structurally, the area is dominated by the folded, steeply inclined Preeambrian and Lower Palaeozoie roeks and the overlying Permian and Mesozoie rocks which exhibit only low regional dips. The rocks of the Davey Group whieh have been intensely squeezed with intrieate drag folds, dip from 80° to vertieal and strike to 310°.

An angular unconformity is interpreted between the Davey Group and the overlying Dundas Group. The latter is folded isoclinally with the beds generally dipping from 70-80° to the north-east. The structure is primarily an antieline which conforms with the structure of the overlying Owen Conglomerate. When compressed, relief was vertical; later north-south trending faults eut the fold. Assuming movement in the faults was vertical then the throw was very great. The horizontal displacement of the beds is 500 feet. The faulting probably occurred in the latter stages of the Tyennan Orogeny. The compression of the roeks has produced intense jointing and conjugate sets of joints symmetrieally disposed about the axial surface of the fold are common. They can be considered as shear fractures whieh present their aeute angle to the maximum stress and indieate relief in a horizontal direction.

The Scott Quartz Keratophyre and Kentish Spilite both oceur as formations interfingering with the Warner Siltstone. The quartz keratophyre, however, occurs 600 feet higher in the sequenee than the Kentish Spilite and, therefore, is not necessarily eoeval.

There is an angular unconformity between the Dundas Group and the overlying Junee Group. The axes of the asymmetrical folds in the Junee Group, however, are parallel to the fold axis in the Cambrian rocks. Two miles south of Deloraine the Owen Conglomerate strikes 305° and dips at 45° to the north-east whereas the underlying Warner Siltstone strikes 295° and dips at 70° to the north-east. This outcrop of Owen Conglomerate represents the eroded northern limb of a broad antieline which is a continuation of a syncline present in the same roeks west of the Lake Highway. The northern limb of the syneline dips at 70° to the south-west and the southern limb at 45° to the north-east. To the south the conglomerate unconformably overlies the Davey Group and is almost vertical on the south-western margin of these roeks where it is folded into the Stockers Syncline.

No structural detail is available at the northern exposure of the Gordon Limestone on Cameron's property and it is eoncluded that the outcrop has been isolated by later (probably Tertiary) faulting. Permian and Jurassic rocks to the north have also been faulted against the Dundas Group roeks. The Gordon Limestone on Stoekers Plain dips at 66° to the north-east and is apparently overturned although there is no lithological evidence for this. The Caroline Creek Sandstone conformably underlies the Gordon Limestone here and is present as a small outercp on Stoekers Plain where it lies on the axis of the Steckers Syncline.

Two majer normal faults trending north-west have eut Triassic and older rocks and possibly the Jurassic dolerite in the central eastern area the downthrown bloeks being to the north-east.

It is probable that these faults are post-Jurassie since distinet lincaments are visible across the Jurassic dolerite on the aerial photographs. There is no marked disjunetion of the margin of the dolerite, however, and there is no eonelusive evidenee of faulting when examined on the ground.

A fault breccia is present on the Quamby Brook road at 877,230N-464,970E and appears to mark the position of the southernmost fault. Both of these major displacements have throws of 1200 feet. These faults have had a major role in determining the physiography of the area and are responsible for the scarp of the Great Western Tiers.

Triassic and Upper Permian rocks crop out beneath the northern margin of the dolerite sill north of the Eden Rivulet, but no sedimentary rocks occur either overlying or underlying the dolerite sill north of Exton. This either indicates that the Meander Valley was a graben or that the northern sill was intruded at a lower level and the valley floor was eroded in soft Triassic and Permian sediments. There is no field evidence for either hypothesis but it appears likely that the valley was partly controlled by the major Tertiary faulting and was later instrumental in confining the outporings of Tertiary basalt.

A small fault is present in a creek bed at 880,850N-469,520E. The western block has been downthrown about 50 feet and Ferntree Mudstone has been faulted against Knocklofty Sandstone and Shale. The fault does not appear to disrupt the margin of the dolerite sill and may therefore be concomitant with the intrusion. On the northwestern slopes of Quamby Bluff the Liffey Sandstone, which forms prominent ledges on the hill slopes, cannot be traced to the south and there is a large area here (873,000N-460,000E) covered by large dolerite blocks and dolerite, presumably in situ. A discordant sill with concomitant faulting has caused a large block of sediments to be downthrown. There is no relative displacement between Permian formations on either side of the intrusion.

The dolerite dyke which crosses the Lake Highway at 872,350N-465,300E has not displaced the Permian rocks. This intrusion may have acted as the feeder to the sill to the east which intrudes the Liffey Sandstone. The sill has not displaced the overlying beds but has probably downthrown an underlying block. The dyke strikes at 10° and crosses the Quamby Brook road at 874,230N-465,640E and continues to the north in a sill-like form and, in plan, completely surrounds an isolated outcrop of Owen Conglomerate. The dolerite was probably intruded here at the unconformity between the Permian and Lower Palaeozoic rocks.

The Quamby sill is concordant but the Cluan Sill is transgressive and dips at 4° to the north-west. The northern extensions of this sill, 5 miles southeast of Deloraine, are also transgressive. In general the dolerite is concordant where it intrudes Triassic sediments but discordant where it intrudes Permian rocks.

The regional dip of the Permian and Triassic sediments is 5° to the south-west, the strike being parallel to that of major Tertiary faults. Local dips up to 20° occur in the vicinity of major faults or close to dolerite intrusions.

ECONOMIC GEOLOGY

Oil shale occurs in the Quamby Mudstone east of the Quamby Brook road on Bake's property.

The Bakes Oil Shale Member is that member of the Quamby Mudstone containing abundant spores called Tasmanites punctatus, and in the type area occurring 65 feet above the base of the Quamby Mudstone. The member is 5 feet thick. It is so named because it occurs on property owned by Mr. Bakes. The type locality is in and beside Quamby Brook just upstream from the bridge carrying the road from Quamby Brook township to Golden Valley (co-ordinates 874·7N-465·8E).

The deposit was discovered in 1919 and reported by Hills (1921) and Reid (1924). Oil shale has also been reported in the Eden Rivulet area and on Burns' property west of the Lake Highway, but both have probably been confused with the shaly carbonaceous beds in the Liffey Sandstone.

The seam is 5 feet thick and extends over an area of 310 acres which indicates a probable reserve of 1,500,000 tons of oil shale. The fresh shale is a medium-grained lutite, blue-grey on a fresh surface but weathers to rusty-brown, the spores being visible as orange-brown discs on the bedding planes. In transverse section the spores are flattened and irregular but were probably originally spheroidal or ellipsoidal.

Church (1864) applied the name "Tasmanite" to the spores which were also mentioned by Bonwick (1870) who says "The resinous dots in the dysodile have received the name Tasmanite". Newton (1875) proposed that the name Tasmanite be retained for the oil shale and that the spores be called *Tasmanites punctatus*. The origin of the spores is discussed by Singh (1931). The physical properties of the oil shale and its analysis is described by Milligan (1852), Penny (1855) and Church (1864). Research into the problems of retorting the shale and refining the products was carried out by Kurth (1933).

The oil shale at Quamby Brook originated as a small, shallow water barred basin or estuarine deposit, separated structurally from the off-shore marine Permian beds to the west by the ridges of Precambrian and Junee rocks. The shale has no commercial use at present, due primarily to the inferior nature of the products, but constitutes a large reserve of oil of strategic value.

Secondary azurite and malachite have been reported from the Kentish Volcanics at Quamby Brook (875,650N-465,300E) where a shaft of unknown depth has been sunk. No large deposits were observed but minor encrustations of malachite occur. No primary sulphides were observed in the lava but the oxidised zone may pass downwards into a zone of secondary enrichment and appears worthy of further investigation. Reid (1924) gives the assay of bulk samples of the ore as 0·29 per cent copper with small amounts of silver and gold.

The structure and lithology of the Dundas Group indicate conditions favourable for ore emplacement, however, the disseminated sulphides commonly found appear to be syngenetic in origin.

SUMMARY AND CONCLUSIONS

The investigation was carried out in an area of exhumed Permian topography modified by more recent dolerite intrusions, basalt flows and Tertiary faulting. The Jurassic dolerite occupies the largest surface area.

The intricately folded quartzites and mica schists of the Precambrian Davey Group are unconformably overlain by 7000 feet of Cambrian eugeosynclinal deposits. No fossils were found in the Group but it is correlated with the Dundas Group of similar lithology and structural environment. The sediments show a large scale development of graded bedding which has been attributed to the action of high density turbidity currents. They have been isoclinally folded into an anticline, the beds dipling uniformly at about 75° to the north-east. The fold is cut by north-south trending pre-Ordovician faults. If these are normal faults, they have a throw of approximately 2000 feet.

The Cambrian Dundas Group is overlain unconformably by the folded Ordovician Junee Group rocks which are about 2300 feet thick. The fold axes in this group are parallel to those in the Cambrian rocks. It appears almost inevitable that islands of Owen Conglomerate and Davey Group existed in the Permian seas and basal Permian sediments lap against these older rocks in the Golden Valley area. The Permian sediments have suffered little deformation and the regional dip is 5° to the south. They were derived from a glaciated terrain composed of metamorphics and acid plutonics. Cyclic sedimentation is evident.

The contact between the Triassic and Permian sediments is marked by a siliceous breccia which is a prominent marker horizon. The Triassic shales have been favourable for injection by dolerite as dykes and concordant and discordant sills. All traces of sediments overlying the dolerite have been removed. Two major normal faults, probably Tertiary in age, have downthrown large blocks to the north-east and the throws, calculated from displacements in the Permian and Triassic rocks, are 1200 feet.

The extrusions of basalt are confined to the old valley of the Meander River. Eustatic fluctuations in sea level have not affected the drainage due to the presence of several local base levels in the river courses.

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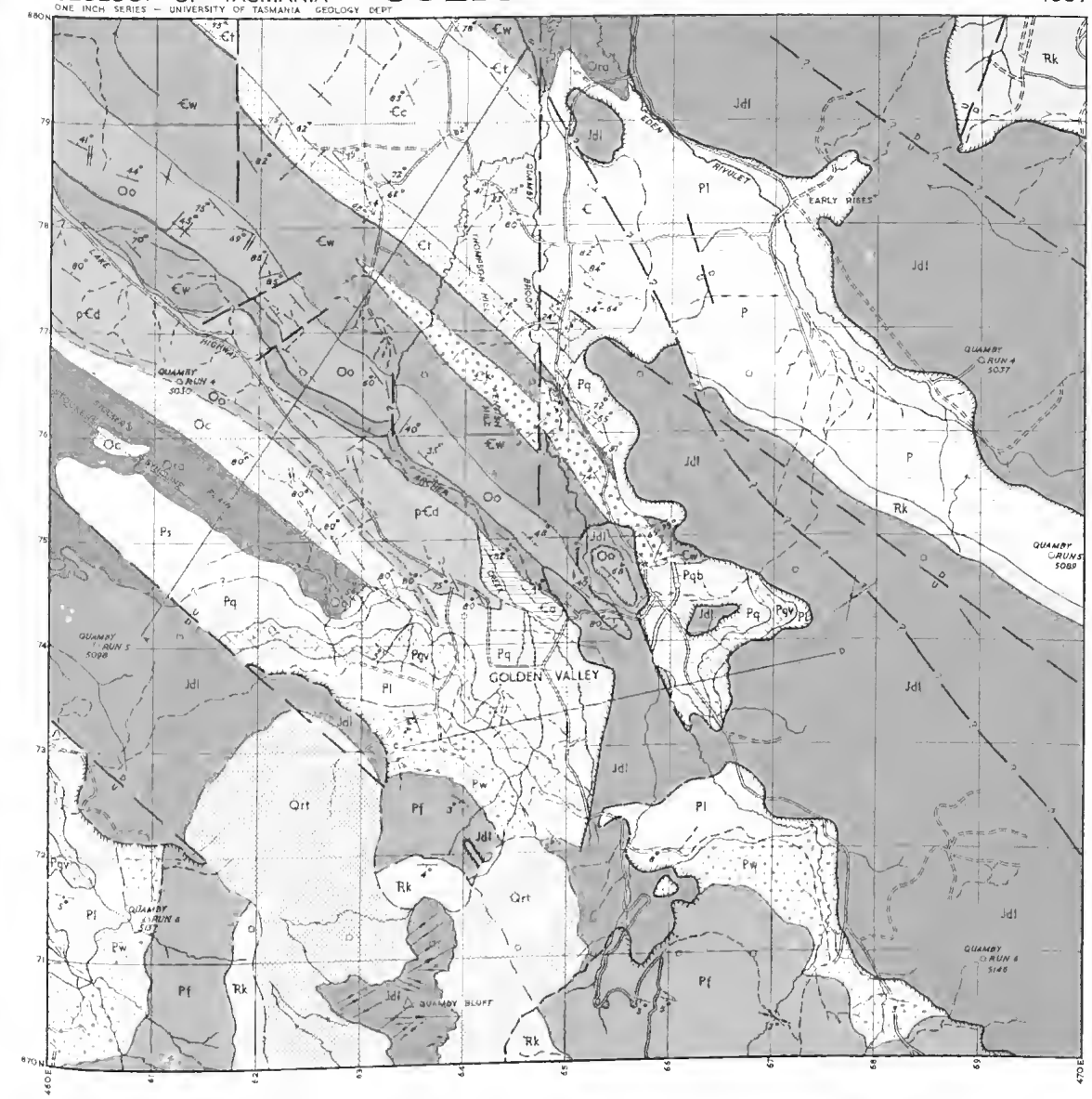
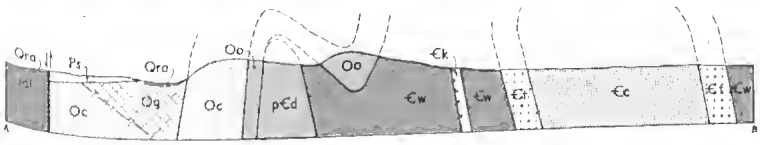
LOCALITY INDEX

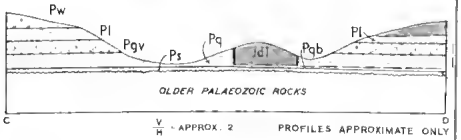
Cluan	41° 39′	146° 48′
Deloraine	41° 31′	146° 40′
Exton	41° 31′	146° 45′
Golden Valley	41° 37′	146° 43′
Quamby Brook (town)	41° 35′	146° 42′
Quamby Brook (creek)	41° 33′	146° 43′
Stockers Plain	41° 36′	146° 37′

L. G. SHEA, Government Printer, Tasmania.

GOLDEN VALLEY







V/H = APPROX. 2 PROFILES APPROXIMATE ONLY

LEGEND

- FAULT WITH DOWNTHROWN SIDE INDICATED
- FAULT – POSITION APPROXIMATE
- FAULT INFERRED
- FORMATION BOUNDARY

Dolerite Boundaries

- CONCORDANT SILL
- DISCORDANT INTRUSIVE BOUNDARY
- VERTICAL JOINTS
- STRIKE AND DIP
- ROADS
- VEHICULAR TRACK
- TRACK
- QUARRY
- AXIS OF SYNCLINE
- BRECCIATED ZONE
- TRIGONOMETRICAL STATION
- PHOTO CENTRE

Quaternary System

- Qra — ALLUVIUM
- Qt — TALUS

Jurassic ? System

- Jd — DOLERITE

Triassic System

- Rk — KNOCKLOFTY SANDSTONE AND SHALE

Permian System

- Pf — FERNTREE MUDSTONE
- Pw — WOODBRIDGE GLACIAL FORMATION
- Pl — LIFFEY SANDSTONE
- Pgv — GOLDEN VALLEY LIMESTONE AND SHALE
- Pq — QUAMBY MUDSTONE
- Pqb — QUAMBY MUDSTONE — BAKES OIL SHALE MEMBER
- Ps — STOCKERS GLACIAL FORMATION
- P — UNDIFFERENTIATED

Ordovician System
JUNEE GROUP

- Og — GORDON LIMESTONE
- Oc — CAROLINE CREEK SANDSTONE
- Oo — OWEN CONGLOMERATE

Cambrian System
DUNDAS GROUP

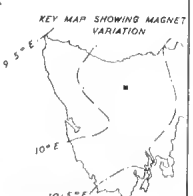
- Cw — WARNER LAMINATED SILTSTONE
- Ck — KENTISH SPILITE AND VOLCANIC BRECCIA
- Cs — SCOTT QUARTZ-KERATOPHYRE
- Ca — ARCHER SUBGREYWACKE AND SLATE
- Ct — THOMPSON SLATE AND GREYWACKE
- Cc — CALSTOCK SLATE AND SUBGREYWACKE
- C — UNDIFFERENTIATED

Precambrian System

- pCd — *DAVEY GROUP*

Compilation from Aerial Photo
Trigonometric Station Control
courtesy Forestry Departmer
Origin of coordinates 400,0
West and 1,800,000 yds. So
True Origin of Zone 7 of th
International Grid.

KEY MAP SHOWING MAGNET VARIATION



— SCALE —

0 1 2 3 4 5000 MILE
0 1 2 3 4 5000 10,000 FEET

MAPPED AND COMPILED BY A. T. WELLS 1954

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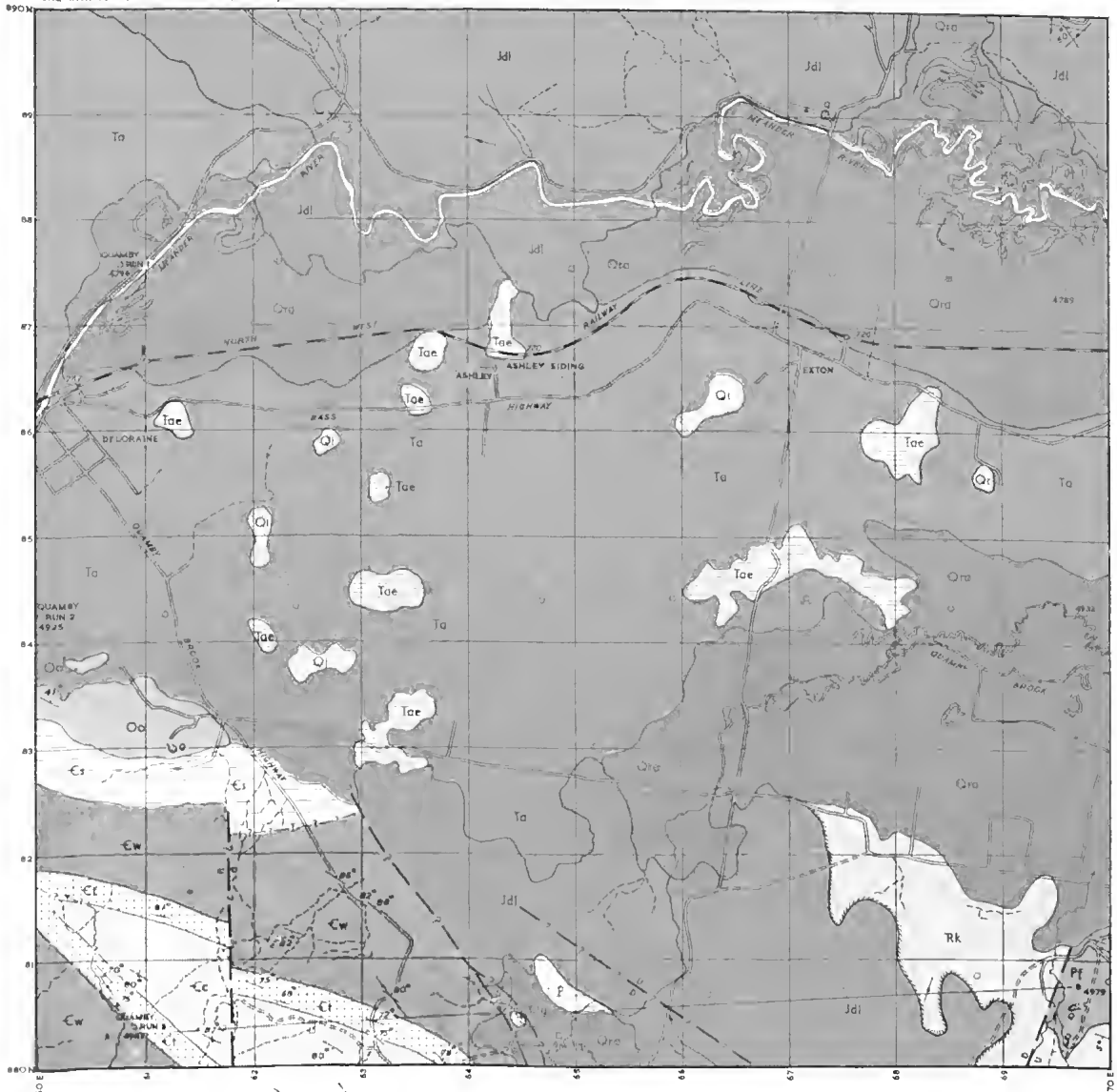
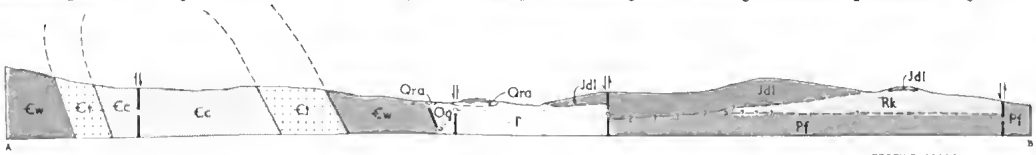
2. STRATIGRAPHIC TABLE:

SYSTEM	GROUP	FORMATION	ROCK TYPE	THICKNESS (in feet)
Quaternary	Recent Series		River alluvium	
		EROSION INTERVAL		
Tertiary			Basalt flows	250-300
			River gravels	10?
		STRONG EPEIROGENY AND FAULTING PENEPLANATION AND UNCONFORMITY		
Jurassic?			Dolerite sills and sheets	600+
Triassic		Ross and Knocklofty	Sandstone and Shale	500
		Basal Grit	Conglomerate and pebbly sandstone	50
		DISCONFORMITY?		
Permian		Ferntree	Mudstone	650
		Woodbridge	Siltstone (glacial in part)	335
		Liffey	Sandstone	250
		Golden Valley	Tillitic limestone and shale	200
		Quamby	Mudstone (includes Tasmanite 5ft.)	350
		Stockers	Tillite	45
		UNCONFORMITY		
Ordovician	Junee	Gordan	Limestone	1000
		Caroline Creek	Sandstone	200?
		Owen	Conglomerate	0-300
		UNCONFORMITY		
Cambrian	Dundas	Calstock	Slate and Greywacke	1900
		Thampson	Slate and Greywacke	600
		Kentish	Spilite and volcanic breccia	1400
		Warner / Archer (alternate)	Siltstone and Slate	1900
			Sub-greywacke and slate	900
		UNCONFORMITY		
Pre-Cambrian	Davey		Quartz, mica and graphitic schists	1000
			Massive quartzites	2000

DELORAINE





PROFILE APPROXIMATE ONLY

$\frac{V}{H}$ = APPROX 3

LEGEND

- FAULT WITH DOWNTHROWN SIDE INDICATED
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Dolerite Boundaries

- CONCORDANT SILL
- DISCORDANT INTRUSIVE BOUNDARIES

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Quaternary System

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- Cs SCOTT QUARTZ-KERATOPHYRE
- Cf THOMPSON SLATE AND GREYWACKE
- Cc CALSTOCK SLATE AND SUBGREYWACKE

KEY MAP SHOWING MAGNETIC VARIATION

Compilation from Aerial Photographs
Trigonometric Station Control by courtesy Forestry Department
Origin of coordinates 400,000 yds West and 1,800,000 yds South of True Origin of Zone 7 of the International Grid

SCALE

0 1 2 3 4 2 MILES
0 5000 10,000 FEET

MAPPED AND COMPILED BY
A. T. WELLS 1954

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Triassic		Knocklafty	Sandstone and shale	400+
		DISCONFORMITY		
Permian		Erntree	Mudstone	300+
		UNCONFORMITY		
Ordovician	Junee	Owen	Conglomerate	100+
		UNCONFORMITY		
Cambrian	Dundas	Calstock	Slate and Greywacke	1900
		Thompson	Slate and Greywacke	600
		Scott	Quartz-Keratophyre	1200
		Warner	Siltstone and Slate	1900

THE VAN DIEMEN'S LAND COMPANY

1825–1842

by

A. L. MESTON, M.A.

☆

Arranged for publication by W. M. Meston

Introduction by K. M. Dallas, B.Com.

☆

Edited by
FRANK ELLIS
Director of the Museum

PUBLISHED BY THE MUSEUM COMMITTEE
LAUNCESTON CITY COUNCIL

Summary

From a study of the wool trade in Britain and the increasing inadequacy of the supply of fine wool the work proceeds to the chartering in 1825 of the Van Diemen's Land Company. Its grant was to be outside the settled areas and its powers confined to growing fine wool. Edward Curr, its colonial agent, found the colonists suspicious of absentee monopolists and the Governor prepared to put on his instructions the interpretation least favourable to the Company.

The regions of land grants were quite unsuited to raising fine woolled sheep, the surveyors had to contend with forested mountains and severe weather to find the few likely areas. Stock losses were heavy from weather, marsupial wolves and aborigines.

In 1835 the opening of Port Phillip led the Company to seek a transfer which was refused.

Curr was dismissed in 1841 just before the boundaries of lands were finally approved. His vigorous management was unable to overcome the natural and official obstacles but his pioneer work was very important for the later development of North-West Tasmania.

THE VAN DIEMEN'S LAND COMPANY 1825–1842

Introduction

The Van Diemen's Land Company was limited by its charter to land operations and also to a region of the island hitherto untouched. Its agents arrived to find the Governor and his officers prepared to give it the full rigour of the law and use every device to put upon its charter the interpretation least favourable to it. Curr reports frequently the rejoicing of the local landholders at every discomfiture, as, for example, when his indentured servants absconded and were employed and given legal protection by his rivals.

Even if it had been permitted to select land in the Port Phillip region it is certain that it would still have been harassed by attacks both through official channels and by individual squatters. In support of this view that the Company was discreetly thwarted within the law by the Governors and the colonial oligarchy, one should study the official despatches concerning its mainland counterpart, the Australian Agricultural Company. In much more favourable circumstances it suffered the same rigour of colonial regulations. When the stress of the 1842 crisis sharpened economic issues, we find Gipps writing to Lord Stanley of the extent to which colonial property was falling into the hands of absentee mortgagees (he had seen the same thing at first hand in the West Indies) and adding bluntly "This colony has never derived, nor is it likely to derive, any advantage from companies formed in England, neither from the Australian Agricultural Company, the Bank of Australasia nor any other. I cannot but apprehend that the high pretensions of the recent companies which have started into existence else where, and especially of those formed for the colonisation of New Zealand, will end in disappointment, if not in disaster."

Thus the trial of strength was not merely between persons but between systems of colonisation and Curr was the agent of the obsolete one. The notebooks Meston filled with extracts from correspondence show how Curr's advice based on local knowledge was repeatedly ignored by the Court of Directors or acted on when the conditions on which it was based had changed.

In its restriction to unsuitable land lies the main reason for the failure of the Company, but in the given conditions the covert opposition of colonial settlers and Governors was also inevitable. The remoteness of the location and the unfavourable climate compelled Curr to branch out into rearing stud stock instead of concentrating on large scale wool production, and to resort to tenant farming, but the policies decided in London and the impatience for dividends harassed him continually. It is a matter for regret that Meston has left us only a notebook record of these aspects, but his study of the location difficulties provides the essential bases for future historians.

As the Company was compelled to select land outside the settled regions the choice of specific areas depended very much on the reports of its surveyors. All of them were more or less recent arrivals in the island but also the region they were asked to survey was one of peculiar difficulty and the historian quickly comes up against discrepancies in the journals themselves when comparing them with contemporary and later maps.

The problems posed by the explorers' records could be resolved only by an equal zeal and effort. In 1925 Meston spent a week on foot surveying the Surrey Hills, checking by map and compass the route taken in 1827 by Henry Hellyer, seeing the conditions of the first abortive attempts at sheep-farming there and discovering in a remote corner a remnant of the Company's herd of Kyloes. The record of Hellyer's return journey through the forested gorges of the Arthur River is confused and Meston held that the privations and exhaustion which nearly cost the lives of his party had caused them to mistake rivers and other features. He worked on the hypothesis that somewhere in that still unexplored region there was a large tributary which Hellyer mistook for the main stream.

The best maps available marked the region as unexplored. The river basin is densely forested and cut by deep, precipitous gorges. It is separated from the similar Pieman River valley by a belt of high, heathy hills, which run to the West Coast. Few had penetrated the Arthur Valley or traversed it within living memory. In the summer of 1931 Meston organised a small party, including Mr. D. Jones, a farmer who had in youth searched for minerals on the fringes of this forest. They crossed the Arthur River but torrential rain and the confusion of river gorges prevented any decisive discovery. The next summer he tried again and in five days succeeded in forcing a passage, finding the suspected tributary and following it to its headwaters. The hypothesis was untenable.

The completed chapters of this work do not reveal the vast labour that was necessary before they could be written, a labour performed necessarily in time borrowed from the scant leisure of a full and active life. A. L. Meston did nothing by halves. To test the accuracy and assess the worth of the written records it was necessary to see the lands occupied by the Company, judge from the contemporary condition of its extensive grants the nature of the problems faced by its founders, to traverse

(perforce on foot) the roads and tracks opened by its surveyors and check the accuracy and veracity of its explorers by going over their routes with map and compass.

With indefatigable zeal and energy and a keenly sceptical mind he set himself the task of amassing the evidence of this field work and collating the text of the journals with this and with the official reports. Where other historians have been content to take at face value the picturesque record left by Jorgenson, Meston, who had a vast and intimate knowledge of the topography, forests and climate, was not merely content to brand some of his claims as absurd. He followed in detail the sequence of Jorgenson's journeys and proved in his own person that they were indeed absurd.

Not always successfuly for he was often frustrated by time and circumstance. In 1935, for example, he had only five days in which to travel to the West Coast and climb the remote Mt. Sunday. He wished to verify by visual checking that Jorgenson's claim to have seen Mt. Dundas from its summit was a palpable error. He climbed the mountain but low cloud cut off the view and one small point remained untested. Nevertheless, he gained at first hand the data necessary to a full assessment of Jorgenson's narrative. This region has remained almost unused by men, mute evidence of the sober accuracy of the representations made about it by Curr in his repeated pleas to the Governor to be allowed to change the location of the Company's grant.

No one ever vindicated as Meston did the soundness of R. H. Tawney's dictum that "what historians need is fewer documents and stouter boots." It is necessary to insist that he was never merely the historian of the Company. He was also aggressively Tasmanian, with a consuming interest in Tasmanians past and present and not least among these our aboriginal predecessors. He was the Scholar Gipsy whose zeal for knowledge as a power in human understanding had no bounds. The people came first. His surveys brought him into working partnership with the people in the remotest, loneliest parts of this refractory island. He met on their own terms the prospectors, shepherds and farmers in every remote valley and had a faculty for enthusing them with his zeal for knowledge in a way which made them effective colleagues. Over a period of about twenty years he worked on the Company's Tasmanian records, copying in neat script from the inward and outward despatches and surveyors' reports. He searched in Tasmanian archives for Government correspondence and reports, and, as often as time served, made field investigations on the Company's lands to clarify and amplify from buildings, roads and surviving oral traditions the data of the records, but always studying the locality as a whole He was fully aware of the wholeness of history—that no detail of the history of other settlers, of physical environment or of the culture of the primitive Tasmanians, was to be neglected in framing and illuminating the picture of the Van Diemen's Land Company itself and its influence on the development of contemporary Tasmanian society.

His method was first to master the written record; then to take it along with him, along with maps and compass, and to study the sites of the settlements, the visible remains of work done; to walk the roads taken by the Company's bullock drays and follow the routes of the surveyors, comparing their journals all the time with the reports based on them, recording in notebooks on the spot the distance, terrain, vegetation and other relevant data. Always to them was added whatever local legend he could discover, in case something therein might have survived by oral tradition which would illuminate some obscure detail.

When he began this study most of the Company's properties had altered little since their beginnings. What cultivation there was still depended on bullock teams. Station hands were paid in rations and trapping rights. At Woolnorth wool was still loaded by driving bullock drays into the bay where the steamers lay aground at low tide. The original buildings and bridges could be seen. Where methods persist so do men, and in the oral traditions of families there were details to be found which enlightened the reports of managers and explorers.

Such field-work is often negative; it cancels out or discounts recorded over-optimism. It may therefore affect the result in ways that are not apparent, for example, merely by preventing the historian from taking the documents at their face value.

Only such painstaking field-work could find evidence of the influence of the aboriginal hunting society on the pastoral phase of development. The grass lands which the Company's surveyors found were artificial, the product of the annual burning of the scrub by the aborigines over centuries of visits to their inland summer hunting grounds. The paths they pioneered to these became the cattle tracks of the Company. Had he lived to write it we should have been the richer for his knowledge of the neglected influence of the aborigines on many other forms of European activity.

It is certain that, falling when it did, in the persistent, detailed, strenuous examination of the physical and social survivals of the early years of the Company, Meston has given us, even in its incomplete form, an authentic picture of the bases of Tasmanian development.

His plan to tell the story of the Company's relations with the aborigines would have grown out of his full and precise knowledge of the whole aboriginal culture of the island. In December, 1927, and January, 1928, he made his first visit to Woolnorth, and in two days traversed the whole coast-line of that region, returning with detailed notes of the Company's work there and also a heavy load of aboriginal implements for the valuable collection now owned by the Melbourne Museum. In 1930 he studied the carvings on the basalt rocks of Mersey Bluff, and in 1931 read a paper to the Royal Society of Tasmania describing them. Scientists were sceptical as to the origin. Some ascribed them to natural agents, others denied that they could have been done by the extinct Tasmanians.

The controversy led to a report, reaching Meston at fourth hand, of carvings seen on sandstone rocks near Woolnorth. His knowledge of that coast, of the Company's records of numerous tribes in the

area and his zeal to establish the significance of early Tasmanian culture, made him eager to test the report. In December, 1931, he revisited Woolnorth.

The manager, Mr. Wainwright, who had known the place from boyhood, had never heard of the carvings and described the original source of the rumour as "the biggest liar we ever had here."

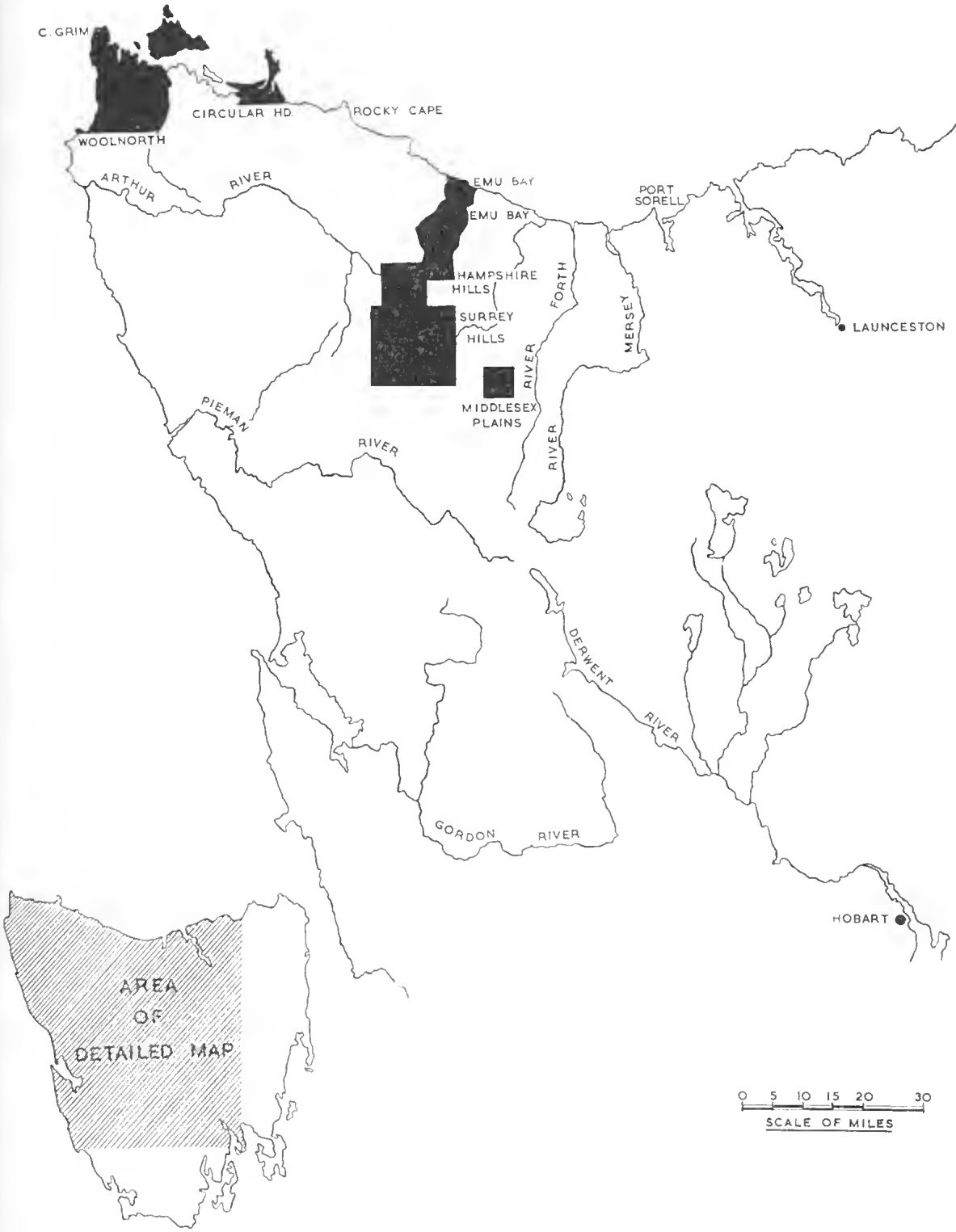
Meston spent one long hot day searching many miles of the West Coast, and returned to camp late at night with his confidence much diminished. Next morning Mr. Wainwright came to report that his shepherds knew of the carvings and described exactly their location.

This discovery disturbed considerably all previous conceptions of the level of Tasmanian culture, and has led to many similar finds which clarify considerably the relation of the Tasmanians to human history. It is hardly open to question that without the man and his methods such a discovery would have been very long delayed.

The Company's records have much information about the aborigines derived from articulate and not unsympathetic observers, who, nevertheless, were instrumental in driving them out of a region where they had been previously unmolested.

Meston alone could have reconstructed this situation. The records are still there but no one can now find the people who amplified to him, from local legend, the details recorded, and no one will have again the comprehensive knowledge of that region in its relation to the rest of the island as it was in that age of transition.

K. M. DALLAS.



LOCATION OF LANDS

EXPLORATION

New Series, No. 9.

RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

THE VAN DIEMEN'S LAND COMPANY 1825-1842

By

A. L. MESTON

(*Manuscript received 28th March*, 1958)

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I. ORIGINS AND CHARTER.

The foundation of the Van Diemen's Land Company is closely bound up with the manufacture of woollens, the traditional staple industry of England. The Company was the direct outcome of the conditions existing in that industry in the first quarter of the nineteenth century. Those conditions had their roots deep in the past and if we are to understand them at all we must look back to the preceding centuries.

From the time of the Normans the woollen manufacturer was protected by restrictive legislation and, as time went on, this fostering care was increased. The assize of wool under Edward III was intended to ensure a regular supply of wool for the English manufacturer by checking the export of this product at low rates, thus giving him a preference: Edward IV laid down specific times when raw wool might be exported. This, however, was not sufficient and towards the close of Elizabeth's reign an agitation sprang up for the absolute prohibition of the export of wool. Both James I and Charles I [1] issued proclamations against this export, and the Restoration [2] and Revolution Parliaments [3] by legislation placed an embargo on it, which continued throughout the next century and was renewed as late as 1788 [4]. The object of these measures was not merely to give English weavers a preference but, by preventing industrial rivals from procuring a supply of English wool, to shut out competition: for it was believed that English wool was so superior to other wools as to be essential in certain branches of its manufacture. This policy, which tended to lower the price of wool, was favoured by the manufacturers but aroused the jealousy of the landed interest.

The production of wool received a setback when, in the first year of William and Mary, Parliament encouraged the growing of corn by a bounty [5]. No attempt was made to increase the production of wool by this means since, doubtless, the effects of the enclosure movement of the sixteenth century were still too fresh in the public memory and legislation for this purpose would have aroused widespread opposition.

As the wearing of wool was almost universal, the demand for woollen goods was increased by the clothing needs of the rapidly growing population in the closing years of the eighteenth century. But this population had to be fed and there was an increasing demand for the sheep as mutton. This demand led to an improvement in the breed of English sheep in which it was more the object to obtain a greater weight of carcase than to improve or preserve the quality of wool. Under the influence of this, English wool deteriorated, for "the heavier the carcase the coarser the fleece" [6]. Indeed, Alexander Williams writing in 1800 laid it down as a maxim that "so long as Englishmen are fond of fat mutton they must not expect to grow fine wool" [7]. By the close of the eighteenth century English wool was far coarser than in earlier times: In 1557 an Italian wrote "the wool is so fine that the Spanish wools cannot be compared with it" [8] but, in 1802, the English manufacturer imported five and a half million pounds from Spain to make the finer cloths, indisputable evidence of the deterioration.

The increased demand, and the falling away of the local supply owing to the deterioration of the fleece, caused a rapid rise in the price of wool. Long wool quoted at fourpence per pound in 1780 was, in 1791, sevenpence three-farthings: short wool, fourpence three-farthings in 1780, was ninepence in 1791 [9]. In 1795 there was such a shortage as to amount almost to a famine and the price again rose.

Jealously watched by the woollen manufacturers, the cotton industry steadily developed in the first half of the eighteenth century, but it was not a serious competitor until Arkwright invented roller spinning (the water twist) in 1769 and Crompton developed the mule in 1779. These inventions were at once applied to the spinning of cotton and the trade went ahead by leaps and bounds. The possibility of an enormous and indefinite expansion was now revealed. In Lancashire cotton replaced wool. "From the year 1770 to 1788," writes Radcliffe, "a complete change had gradually been effected in the spinning of yarns—that of wool disappearing altogether, and that of linen was also nearly gone—

cotton, cotton, cotton was become the universal material for employment, the hand wheels with the exception of one establishment were all thrown into lumber rooms, the yarn was spun on common jennies, the carding for all numbers up to forty hanks in the pound was done on carding engines "[10].

As cotton goods were only one-eighth of the price of woollen articles the serious nature of the competition can be readily judged. Moreover, there was no limit to the supply of raw material, the Southern States in America and the East offering an unlimited source of supply. The rapid increase in the manufacture of cotton goods may best be gauged by the imports of raw cotton: in 1785 eighteen million pounds were imported, in 1800 fifty-six million pounds [11].

With the woollen industry it was far different. The jealous protection for centuries by Acts of Parliament had robbed the trade of initiative, with the result that from the time of Elizabeth I., scarcely an improvement had been made in the process of manufacture. In spite of the increasing population the industry was practically at a standstill and afforded a striking contrast with that of cotton. To apply the new mechanical inventions to its manufacture would not solve the problem for the supply of wool, unlike that of cotton, was strictly limited and expensive machines, if installed, must lie idle a great part of the time. The manufacturer had long required the long staple merino wool of Spain for some of the fine cloths, but the main supply of wool was the English clip. The rise in the price of the local wool, the inadequacy of the supply to meet the demand, and its deterioration in quality drove the manufacturer more and more to seek sources of supply of raw material abroad. This demand for fine wool was accentuated by a change in fashions. Customers were demanding finer and finer cloths and for these the coarser English wools were unsuitable. From Spain the manufacturer turned to Saxony where wool-growers were specialising in producing the finest wool. In 1800, only 8,609,000 lbs. of foreign wool (mainly Spanish) were imported, of which 412,394 lbs. were from Germany; but in 1814 the German amount had risen to 3,432,465 lbs,, and in 1825 to 28,799,661 lbs. Importation from Spain had dropped but it was still approximately five times the amount exported from Germany in 1800. These figures afford striking evidence of the growing dependence of England on foreign wools [12].

It must be remembered that machine production did not supplant hand-weaving in the woollen industry until after 1825.

This dependence upon foreign supplies was the cause of great anxiety, not only to the manufacturers who saw their supplies would be seriously threatened by the advent of a foreign war [13], but also to many patriotic Englishmen. Merinos were imported from Spain and an attempt was made to improve the breed of English sheep; George III., Sir Joseph Banks, Lord Weston and Mr. J. K. Trimmers being especially active in furthering the scheme. It was on the grounds of relieving England from its dependence on foreign nations for wool that John Macarthur, in 1804, based his request to Earl Camden for an extensive grant of land in New South Wales. Many advocated the repeal of the export embargo, arguing that permission to export would raise the price of wool and thus induce landed men to increase the supply [14]. This was strenuously opposed by the manufacturers, who had long enjoyed the monopoly of the home supply and wished to retain it. The influx of superior wool depressed the price of the home product to such an extent that agriculturists, disappointed in their efforts to produce wool equal to the Spanish and Saxon wool in fineness, demanded that Parliament tax all imported wool. In 1819 this was done and a duty of 6d. per lb. was imposed on foreign wool. All this tended to increase the price of the finished article and enabled cotton goods to get a greater share of the market. As early as 1803 we find the clothiers lamenting that, owing to the scarcity and advanced price of Spanish wool, large orders of fine cloths had for some years been frequently rejected. The exorbitant price of the raw material and the contingent expenses of the trade made it almost impossible for them to supply the continental markets with any profit to themselves [15].

The introduction of machinery into the cotton industry had reduced the price of manufactured goods two hundred per cent, although the price of the raw material had advanced. Experiments had proved that the same machinery was applicable to the woollen industry and, if applied, "the British manufacturers would be enabled so to reduce the price of woollen cloths and would secure throughout the world the most complete monopoly that any people ever possessed" [16]. But the limited supply of raw material was the greatest obstacle. Macarthur visited England in 1804 and applied to the Secretary of State for the Colonies for a large grant of land in New South Wales to produce fine wool. He was convinced that the mother country might in a few years obtain from New South Wales all the fine wool it would require [17] and at a price much lower than was being paid for Spanish wool. New South Wales, in short, offered boundless possibilities for the woollen industry. He proposed to found a company in England with a capital of £10,000 for producing fine wool in New South Wales. The Government was to assist by granting one million acres. Woollen manufacturers throughout England, alarmed for their supply of fine wool, "it being mostly drawn at this time from a country influenced, if not dependent, on France" [18], were interested in his project. From all parts of the country memorials were presented urging the Government to give every encouragement to the undertaking. He failed to obtain the use of English capital, but public interest was aroused. After examination by the Committee of the Privy Council for Trade and Plantations, he received a grant of 5,000 acres of land in New South Wales for his purpose [19]. He then purchased seven merino rams and two ewes at a sale of the King's stud sheep and, having obtained permission from the Government to take them out of the country, returned to Australia.

Macarthur was highly sanguine of his expectations and predictions. In twenty years he estimated there would be five million sheep in New South Wales and, calculating two pounds

and a half of clean washed wool to each sheep they would produce almost twice as much wool as England purchased from Spain, at an annual expense of one million eight hundred thousand pounds [20]. This was not to be. The great floods of 1806, 1809 and 1817, and the serious droughts of 1813, 1814 and 1815 played sad havoc with the flocks, and it was not until 1818 that "a considerable quantity of wool was on its way from New South Wales" [21]. Compared with the imports from foreign sources, however, this was in reality but a small amount. Two years later, when 180,000 lbs. of wool reached England from Australia, Germany sent over five million lbs. and Spain three and a half million [22].

Of this foreign clip the English manufacturer had no monopoly and English wool-buyers had to face serious French competition, for under Napoleon the French woollen industry had made considerable progress. If the British woollen industry was to survive, foreign wool was essential. Cloths manufactured partly and altogether of foreign wools were rapidly driving cloth made only of English wool from the market, until, by 1824, cloth made of English wool would not sell in competition with that made of foreign wool [23].

Then, too, further development in cloth manufacture was hampered by the limited supply of materials. The introduction of machinery would cheapen the manufactured article and enable it to compete with cotton goods but there was not sufficient material to keep the machines at work. It was imperative to find new sources of supply.

In 1819 Wentworth published "A Statistical, Historical, and Political Description of the Colony of New South Wales." There was a ready sale for the book and it ran into three editions in five years. Public attention was again focussed on the colony and Macarthur's plan of 1804 was revived in 1820, when a proposal was made to Governor Macquarie "for the establishment of a joint stock Company in New South Wales for the growth and production of fine wool" [24].

The advantages offered by Van Diemen's Land for producing fine wool were stressed when James Dixon, of the ship *Skelton*, published his narrative in 1822 [25]. "The country is peculiarly adapted for sheep," he wrote, "and that animal thrives well and increases astonishingly . . . Taking its climate into consideration, it is much superior to Australia where the burning heats in summer dry up everything." He advocated a joint stock company associated for agricultural purposes "provided the Government would give a grant of land commensurate with the capital," and in this way "large wool establishments might be formed which would supersede the necessity of importing from Saxony and Spain."

The idea of a joint stock company was to be recommended by another and more powerful agent. Early in 1823 Commissioner J. T. Bigge published his third report and one of the recommendations made, based on John Macarthur's work and the results obtained by him, was that "settlers possessing capital and a real intention of pursuing the same beneficial course of industry" should receive grants of land in New South Wales "in proportion to the number of convicts they engaged to employ and to the numbers of sheep and cattle they took with them" [26]. In the growth of fine wool he saw "the principal if not the only source of productive industry within the colony from which the settlers could derive the means of repaying the advances made to them from the mother country, or supplying their own demands for articles of foreign manufacture".

These suggestions soon attracted a group of English capitalists. In April, 1824, a meeting was held in London in the office of John Macarthur Junior and it was resolved to form the Australian Agricultural Company to follow agricultural and pastoral pursuits on the lines laid down in Bigge's report, with the production of fine merino wool as an article of export to Great Britain as the primary object [27]. The Colonial Office was at once approached and arrangements were discussed. Finally, on the 22nd of May, 1824, the proposals were submitted to Earl Bathurst in writing and the formation of the Company was approved. A grant of land of one million acres was made and no rival incorporated or joint stock company with similar objects could be established in New South Wales for twenty years.

Attention had been directed to the latent possibilities of Van Diemen's Land, not only by Dixon's narrative, but also by the glowing picture issued by Godwin in his Emigrants' Guide [28] and by Deputy Surveyor Evans' account of its fertility and rapidly increasing wealth [29]. In consequence, a meeting was held on 12th of May, 1824, to discuss proposals for establishing a joint stock company to obtain a grant of land in Van Diemen's Land, the object of the company being the production of Merino and Saxon sheep on an extensive scale. After "very mature deliberation" and prolonged discussion with John Ingle, who had lived for 15 years in Van Diemen's Land and had amassed a fortune there, it was unanimously resolved to approach the Government for a grant of half a million acres for the purpose.

The proponents, eleven in all, were closely connected with the woollen industry of the West of England and, since 1819, had been associated in agitating for a repeal of the tax on foreign wool. Three of them were Members of Parliament; John Pearse represented the borough of Devizes, Wiltshire, Joseph Cripps that of Cirencester, Gloucestershire, and Matthias Attwood that of Callington, Cornwall. In addition, Pearse was one of the directors of the Bank of England and was extensively concerned in army clothing and the cloth trade.

Of the other eight, John Maitland had represented the borough of Chippenham, Wiltshire, in the last Parliament and for more than forty years had been chairman of the wool and woollen trade in London; Joseph Bond was his partner; James Bischoff was a London merchant extensively engaged in exporting woollen goods abroad; Henry Hughes was a factor of Blackwell Hall, London; Edward Phillips resided at Melksham, Wiltshire and was chairman of the woollen trade of his county; John Saunders was a woollen manufacturer of Bradford, Wiltshire; and John Jacob and W. M. Everett were London wool merchants.

The counties of Glouecster, Wiltshire and Somerset produced the finest English wools and the manufacture of fine cloth had long been established there. The manufacturers sent their goods to Blackwell Hall factors in London who distributed them throughout the United Kingdom. Some of the Blackwell Hall factors had also established woollen factories in the West of England. This district was well served by Bristol, which in the opening years of the nineteenth century still ranked as the second seaport in Great Britain. But the coarsening of English wool spread even to the West of England and by 1816 Wiltshire was the only county that had kept the quality from deteriorating [30]. Side by side with this deterioration went a change in public taste, consumers everywhere demanding a finer cloth and, to produce it, fine wools had to be imported from abroad, as was shown earlier. The merchants of Bristol trading with Spain and Portugal brought back fine wools from that peninsula and thus maintained the manufacture of fine cloth in the West of England.

But in 1823 the position had changed. German wools were superior to those of Spain and, in consequence, were better adapted for the finest cloth. Hull was a more convenient port than Bristol for trade with Germany and the rise of the port of Liverpool gave to the northern counties increased advantages of communication. Before long, from its advantageous situation, it was capturing much of the American trade carried on from Bristol. Leeds now became an important centre for the manufacture of the finest cloth. The manufacturers of the West of England and the London factors saw their trade slipping away and turned to Van Diemen's Land, where they confidently expected to produce wool superior in quality to that of all other countries [31] in the hope of maintaining their supremacy. From those best qualified to judge, they had learnt that the climate was in the highest degree favourable to sheep and that the wool was "not only capable of all the melioration and improvement which it was found to attain in Europe, but possessed some of the qualities most essential to the woollen manufacturers in a degree superior even to the choicest fleeces of Spain and Germany" [32]. Because of its superior softness, Australian and Van Diemen's Land wool was better adapted than German wool for the manufacture of the finest cloth. Moreover, wool could be brought from Sydney or Hobart Town at a less expense per lb. than from Vienna or Leipsic [33].

Germany offered a striking example of what could be done in a country adapted for wool-growing. In 1765 a few merino sheep were introduced from Spain and, by judicious management, so great was the consequent improvement of the local breeds that, by 1823, Germany supplied England with the bulk of her fine wool, exporting thence more than twenty-five million pounds. Van Diemen's Land had already proved itself; for the wool exported, though small in quantity, possessed a softness of texture and length of staple admirably adapted for the manufacture of the finer worsted fabrics.

A sub-committee waited upon Horton, who gave it as his unofficial opinion that the Government would raise no objection to such a grant on conditions similar to those just agreed upon with the Australian Company; but, as the land in Van Diemen's Land was valued at a higher rate than that in New South Wales, there would in all probability be a difference in price. He also told them that he felt it his duty to inform the Australian Company of the application [34].

Confident that there would be no official opposition to the grant, the promoters appointed John Pearse as President, Joseph Cripps as Vice-President, agreed on 24 directors, appointed eight, and named a director's fee. Two days later Cripps threw a bombshell when he stated that he had learned from Scott, a V.D.L. settler, that Ingle's information was quite inaccurate. Further conversations with Ingle and John Marsh (a prominent woolbroker of London who handled V.D.L. wool) reassured them, however, and on 22nd of May, 1824, acting on the advice of Horton, they applied for a grant of 500,000 acres in Van Diemen's Land "upon the same terms which we understand are to accompany the grant which is now being made to the Australian Company" [35].

Bathurst agreed to receive the promoters on 5th June and discuss their plan. Pearse advised his companions of the principal objections that would be raised and it was decided that Marsh and Ingle should be present. Much to the surprise of all, Bathurst was not so favourably inclined as he had been, but it was not until later that Pearse learnt that this was in great measure owing to intrigue by the Australian Association.

The frenzied speculation of the time and the campaign of the Australian Company made Bathurst cautious and he could not be convinced. The deputation withdrew to combat three main objections, viz., that two large bodies going into the market to buy sheep would so enhance the price that both would be materially injured; that if fine wool sheep were exported the wool would deteriorate; and that there was insufficient unlocated land in the colony for the grant, without interfering with the present settlers.

No time was lost in obtaining the necessary evidence. John Marsh showed that there was a gradual improvement in the wool [36]. John Ingle reaffirmed what he had already told them, that there was an abundance of unlocated land, the possession of which would not interfere with free settlers. He advised them to ask for their grant to be given in the northern half of the island and two-thirds of it east of the Western Tiers. John Briggs, who made his first acquaintance with the island in 1819 as captain of the convict transport *Admiral Cockburn*, confirmed Ingle's statement. As Briggs possessed a considerable estate in the island and owned large flocks of sheep, he was able to tell them of the marked improvement in the fineness of the wool within the space of a few years [37].

In addition, Pearse exerted his personal influence and before long was able to report that Bathurst appeared to have shed his principal objections and wished them to make a formal request in writing [38]. On the 13th July they forwarded the evidence they had obtained of the suitability of the

island, quoted official reports made to Parliament, and applied for a grant of 500,000 acres "for the purpose of breeding from the best flocks which can be selected in Europe." They stated that they confidently expected a very large quantity of wool would be speedily produced and asked that the grant be made between 147° and 148° 20′ East Longitude and 41° and 42° 35′ South Latitude in five different allotments "as the wool is considerably improved by the frequent change of pasture and as the quality depends in a great measure upon the nature of the land" (39). In particular, they desired their grant "on the east side of the island between the hills and the sea to the West and North of Oyster Bay" (40), where there were no located lands and therefore could be no interference with any of the settlers, a condition on which, as we have seen, Bathurst insisted.

The evidence produced was not sufficient to resolve the doubts in official quarters (41) and, in spite of frequent interviews with Bathurst and Horton, Pearse could not convince them, for persons were continually coming to the Colonial Office and stating that there was not sufficient land in the island. At the end of the year Horton told him that he wished the promoters to meet Lt. Colonel Sorell who, having relinquished the government of Van Diemen's Land, had just reached England (42). Sorell's statements were quite different from those of Ingle and Briggs and confirmed Bathurst's doubts. He declared that all the good land had been granted away and that two-thirds of the island was barren rock, although he said he had little or no knowledge of the north-western district (43). It was now necessary to satisfy Bathurst that Sorell was mistaken and it was resolved to write to all who might be able to give them reliable information.

At this moment Fortune smiled on them. A small book on Van Diemen's Land had just come from the Press (44) and what the promoters read in it gladdened their hearts. "Van Diemen's Land is blessed with a salubrity of climate which no country can surpass and which is found to be peculiarly favourable to the rearing of sheep . . . In the flocks of Van Diemen's Land its true riches will always be found to consist." The author, Edward Curr, had lived in Van Diemen's Land for more than three years as a merchant, had travelled through most parts of the settled districts and had acquired a competent knowledge of the general interests of the colony. He also owned a large estate at the Cross Marsh (45), fronting on the River Jordan. As they knew nothing of Curr they approached Sorell for information. He spoke in the highest terms of Curr's integrity, of the estimation in which he was held by all the reputable colonists, of his knowledge of actual conditions and of the accuracy and reliability of his facts (46).

At once they applied to Curr for information. This he readily gave. He told them that, in the part of the island where they desired their grant, there were several extensive tracts of good country, not difficult of access, well-watered and of which no great part had been located. Of the western side of the island he could tell them little, for it was almost entirely unexplored, but he thought it highly improbable that so extensive an area should possess no good land. He spoke with enthusiasm of the opportunities awaiting a judicious use of capital and showed his belief in the possibilities of the project by joining their ranks. His intimate knowledge of the colony and his boundless energy made him so useful that within two months he was appointed secretary *pro tempore* (47).

At the end of December Pearse wrote Horton that, from their enquiries, they could show "that an infinitely greater quantity of land than is wanted will be easily found adapted for our purpose, distinct and wide from the present located lands" (48). Bathurst, in the meantime, asked Sorell for a memorandum "upon the detached and unlocated parts of Van Diemen's Land and the openings therein for an extensive grant". The latter stated that only in the north-east and north-west quarters were there extensive and unoccupied areas, but that he had a poor opinion of the suitability of the north-east. "From Port Sorell to Circular Head," his memorandum concludes, "would be the most suitable tract for an extensive alienation of land. To whatever extent the quality of the country might admit of a large grant being carried back from the sea (upon which of course would depend the measurement along the coast), even were the interior to be found so unpromising as to narrow the location materially, the space from Port Sorell to Circular Head would afford all that could be required" (49). But he warned Horton that he considered the island contained a greater proportion of inferior land than any country of the same extent and that its mountainous character made it unlikely that there would be many large or continuous tracts of good or useful land (50). There were, however, good prospects of fine wool and the island offered a splendid opportunity for the use of capital in pursuing the black-whale fishery, in opening up the iron deposits at Port Dalrymple, in exploiting the abundant beds of limestone, in shipbuilding and in carrying out distilling, brewing, and tanning. No country could be superior for grain. Wheat was the chief export, not only to Sydney, but to Rio de Janeiro and the Isle of France. The crop had never been known to fail and the insects which attacked wheat in New South Wales, both in stack and granary, never appeared. Potatoes, which were exported in large quantities to Sydney, offered great possibilities (51).

Early in February the directors renewed their application, sending evidence of unlocated land suitable for their purpose, the result of their recent enquiries, and asked for a grant of 500,000 acres or such a quantity as Bathurst thought fit. They were ready to subscribe a capital of one million sterling and, in addition to growing fine wool, they suggested using some of their capital to develop the coal and iron mines which they had learned the island possessed. "We are not proposing," they wrote, "to enter upon this undertaking with temporary or speculative view, but with the sole intention of carrying the measure into effect with a liberal spirit" (52). Time had wrought some changes since the last application in the preceding July. Not only had the scope of operations been enlarged but the proposal had aroused much interest in the city and a number of capitalists seeking a good investment had joined the ranks of the men connected with the woollen industry of the West

of England. Twenty-four signatures were now affixed to the application.

Sorell's support of the project, and his statement that he considered the proposed company would find sufficient land for its purpose west of Port Sorell, convinced Bathurst, in whose estimation he stood high. The applicants were, therefore, asked to send a deputation to discuss the matter at the Colonial Office. Satisfied of their bona fides, Bathurst informed them of his readiness to promote their design and asked them to lay before him a fuller statement of the objects which the Company desired to accomplish and of the powers which it solicited from the Government to carry these objects into effect.

In his dealings with the Company Bathurst, on all occasions, showed himself devoted to the public interest. He fully realised the value of capital to a young and growing community and saw in the Company a means of conferring great benefits upon it, but he knew that small private settlers and local merchants might be injured by the presence of so powerful an organisation. In consequence he made it quite clear that the grant must be remote from the settled districts and offered them the unexplored region lying west of Port Sorell hoping, thereby, to open up for settlement an undeveloped territory at little cost to the public. In consequence of the limited size of the island only 250,000 acres would be granted. His concern for the public interest is again shown in the pledge he extracted from the applicants, "that the shares should not become a marketable or speculative property until the charter should be obtained [53].

The year of 1825 was one of frenzied speculation terminating in a crisis comparable with the bursting of the South Sea Bubble. Thousands upon thousands of pounds were invested by credulous speculators in the maddest schemes. No project was too wildly improbable, not even that of inventing perpetual motion, or of sending Scotch milkmaids to milk the wild cattle of Buenos Aires. The Ministry of the day, which included Huskisson, Canning, and Liverpool, openly deprecated the unreasoning speculation and vainly pointed out the consequences. By March, 1825, the price of shares had reached such a height that a crash was inevitable. Bathurst knew full well that the growth of interest in the Van Diemen's Land Company was in part a result of this speculative activity and the pledge demanded, which the Company honoured both in letter and in spirit, was part of his endeavour to repress the mania for share dealing, and to stem the flood.

Foiled in their first attempt to prevent the establishment of the Company by raising official doubts of the existence in the island of a sufficient quantity of suitable unlocated land, the "Australians" immediately planned to obtain an injunction to restrain the Van Dieman's Land Company from purchasing sheep in Europe for five or six years on the ground that the competition between the two would materially raise the price. The secret was not well kept and Pearse, who learnt of it the day before the "Australians" approached the Government, at once wrote to Horton protesting against the unfairness of the proposal and showing the invalidity of the argument. "They cannot send more than 1000 annually, reckoning 300 a vessel," he wrote, "and they would not take up vessels solely for sheep, but, supposing the extent of their purchase would be 3000, and they were to send out vessels answerable to this number, their purchase would produce the same effect in the market in Germany as the purchase of three sheep would in Smithfield" [54]. The Van Diemen's Land Company would agree not to purchase sheep for a year, but the "Australians," for their part, should agree to obtain all the sheep they needed in that time so that they might not interfere with the Van Diemen's Land Company when it went into the market. As an alternative he suggested that they went to different districts for their sheep: "Let them choose Germany exclusively and we will go to Spain, or let them choose Spain and we will go to Germany, and settle it in the same manner that Abraham and Lot managed their concern under similar circumstances [55].

Bathurst summoned the leaders of both groups and exhorted them to settle the business by mutual arrangement in a fair and reasonable manner. If no agreement could be reached he would decide between them. The Van Diemen's Land Company, fearing that the more powerful interests behind the Australian Company might sway the Government, trod warily. The "Australians," asked what they wished, submitted two proposals. The Van Diemen's Land Company was to pledge itself neither to buy sheep in New South Wales or any sheep imported from there into Van Diemen's Land, openly or collusively, directly or indirectly, for twelve years, nor to buy sheep in the markets of Europe during the years 1825, 1826 and 1827 [56].

The island Company accepted the first proposal, although it pointed out that such a restriction might prove injurious to other interests both in New South Wales and Van Diemen's Land. The second they rejected as unreasonable and unjust, declaring that it meant the Australian Company would have a monopoly of the markets for sheep in the whole of Europe for three years and for no better reason than that the price of sheep might, by the competition of another buyer, be raised in the European market. Since, by a moderate computation, the sheep of Europe numbered 100,000,000, it was absurd to think that purchases made in any one year by two companies for the purpose of exportation to the other side of the world could have any effect on the market price. The great distance alone placed a check on the number that could be shipped. Moreover, the Van Diemen's Land Company failed to see how such restriction squared "with the acknowledged principles of free trade so ably advocated by many of the leading members of the Australian Company." As such a proposition would paralyse the proceedings of the Company, it could never be accepted [57].

Perceiving that the "Australians" would not budge from the position they had taken up, Pearse sent a copy of the negotiations to Bathurst declaring that his Company had done everything possible to reach an agreement and asking him to settle the dispute [58]. This he was unwilling to do except as a last resource.

As a way out of the impasse Pearse suggested, in conversation with Horton, that the Van Diemen's

Land Company be allowed purchase 5000 sheep immediately, and no more for some years. Later in the same day he learnt that his Company had been offered 5000 Spanish sheep and a greater number from Germany without any increase on the price of 1824. He at once wrote to Bathurst telling him of this and suggested that his Company at once purchase 2000 of the sheep under offer (to reach an agreement they were prepared to limit the number to 1000) and no more for the space of two years. British sheep, however, with the exception of those of Merino breed, were to be available for purchase at will (59).

German or Spanish sheep were essential if fine wool was to be produced and the Company could not afford to forego purchasing sheep for three years as the Australian Company demanded. In their endeavour to counter the opposition, the directors left no stone unturned. Four colonists with permanent interests in Van Diemen's Land, but temporarily in England, were now brought forward and a memorial presented to Bathurst petitioning against the restrictions demanded by the Australian Company on the ground that they would be highly injurious to the colony (60).

A few days later the Van Diemen's Land Company made another conciliatory proposal. Curr informed Bathurst that his Company had under offer 5000 Merino sheep to be delivered at the port of embarkation at 40s. a head. He suggested the Australian Company be given the first option. If after one month they decided not to exercise it, the Van Diemen's Land Company should be at liberty to buy; and that this should be the practice followed in buying sheep during the years 1825 and 1826 (61).

After this there could be no convincing talk of ruinous competition in the sheep markets of Europe. But even this liberal proposal failed to change the attitude of the Australian Company, which was so obviously unreasonable that Bathurst was forced to intervene. Eventually the markets of Spain and Portugal were allotted to the Van Diemen's Land Company and those of Germany to the Australian Company for the period of three years and each company pledged itself not to buy in each other's markets, with the proviso that Bathurst could allow either company to buy in any market after a special application had been made to him (62). In addition, the Van Diemen's Land Company sought and obtained a pledge from the "Australians" that they would not adopt any measures likely to hinder them in obtaining sheep.

In accordance with Lord Bathurst's wish, on 22nd March Curr sent him a detailed statement of the Company's intentions and made formal application for a bill to be introduced into Parliament to establish it (63). At the moment of the application Pearse was confined to his bed by sickness and could not, as he wished, interview Horton personally. He sent a letter, however, which reveals that the directors were growing impatient under the protracted delay. He declared that they had done everything within reason to meet the wishes of the Government and to prevent the mania for share dealing. In deference to Bathurst's doubts the Bill had been held over in the last session, but, as these doubts were now dissipated, it was due to the Company to have it brought in as early as possible (64).

The scope of the Company's suggested activities had been greatly enlarged since the first application in May, 1824. The primary object was still the growth of fine wool and the improvement of some considerable portion of the waste and uninhabited lands, but mining, the growth of wheat for export to New South Wales, the Isle of France and the Brazils, the breeding of blood horses for India, whaling and sealing, distilling and brewing from their own produce, the lending of money on mortgage and on such personal securities as are not transferable by mere delivery and endorsement, the advancement of money to the colonial legislature for the purposes of the colony, and the undertaking of public works, were to engage its attention (65).

Bathurst referred these suggestions and his intended reply to Sorell and asked him how far he considered the Company was likely to promote the welfare of the Colony and how far the provisions, which he proposed to sanction for its establishment, were adapted to the objects in view. Sorell's reply, afterwards printed as document 2 in a House of Commons Paper, was entirely favourable.

"The circumstances of Van Diemen's Land induce me to entertain a sanguine expectation of the beneficial results of a company investing an extensive capital in the island, to be applied to different branches of the colonial resources. Such an establishment, under the regulations proposed by your Lordship and conducted with judgment, cannot fail to invigorate the present colonists, to assist the development of the valuable products of the country and, directly or collaterally, to bring into action several important objects which, from want of capital, now either languish or remain wholly unattempted . . ."

"The grant of land which Your Lordship proposes to concede the Company for agricultural improvements, though smaller, of course, in proportion to the capital from being in a country of limited extent than that which the Australian Company received, is adequate to the realisation upon an extensive scale of the improvements pointed out in Your Lordship's letter to the Managers of the Company, especially of the principal and original object of their plans, the improvement of sheep, for which the climate and soil of Van Diemen's Land are so favourable, as in the opinion of competent and experienced judges, guided by the success of all experiments for the improvement of wool which have yet been made, to leave no doubt that the same care and perseverance will give to the colony a breed of sheep not at all inferior in wool to the best in New South Wales: and, should the operations of the Company in this important branch exceed the capability of the present grant, and their claim be supported by practical success, it may be possible, when the island is become perfectly known, to grant aid in grazing lands from the waste lands of the Crown, the locality or quality of which might render them ineligible for division to settlers" (66).

In view of the difference of opinion which arose on the location of the grant at a later time, Sorell's comments are important:

"The North West Quarter of Van Diemen's Land appears to me, under the imperfect information which I had the means of procuring from the remote parts of the island, to be the best suited for this grant. From Port Sorell, situated a short distance to the west of Port Dalrymple, to C. Grimm, the North-West point, there is a tract of mixed land, narrow at the East end, but becoming more open and clear of mountains as it extends to the westward, and having in it three ports or anchorages. I beg leave to suggest to Your Lordship that the tract of country between Port Sorell and Cape Grimm, bounded on the North by Bass's Straits, on the West by the Ocean, and on the East and South by two lines drawn from either shore so as to afford the depth required, might be allowed for the selection of the Company's Grant under the rules and measurements prescribed by Your Lordship, and I am of opinion that, with this latitude of selection, the measurement under these rules will realise Your Lordship's intention with respect to the extent and quality of the grant, and will sufficiently guard against any deterioration of the remaining country" (5).

On the 15th April, 1825, Bathurst wrote to Curr setting out clearly the terms upon which he was "prepared to advise His Majesty to sanction the projected Company." To prevent the concern from becoming a mere speculative venture he insisted that before a Bill was brought in, at least four-fifths of a capital of £500,000 should be subscribed and, before a charter was granted, the subscribers must deposit in the hands of the directors five per cent on the amount of capital subscribed, whilst the directors, on their part, must give him an assurance that the subscribers were "persons of capital and substance adequate to the payment of their subscriptions." The capital subscribed was to be divided into shares of £50 each and the shareholders' certificates were to be endorsed accordingly. Any additional increase of capital which, if so desired, could be doubled, had to be sanctioned by the Government. "As soon as the proposed Charter of Incorporation shall be obtained and the necessary surveys completed," he wrote, "I shall be ready to advise His Majesty to make the Company a grant of 250,000 acres of land in the island of Van Diemen's Land, and one of the primary objects on which the Company will be authorized to expend their capital will be the Clearing, Improvement and Cultivation of this Tract of Land. The words Improvement and Cultivation will be understood in a large and liberal sense as including the formation of Roads, Drains and Bridges, the erection of Houses, Mills and other Works and Machinery necessary or convenient for the occupation or profitable cultivation of the soil, the depasturing of Sheep or Cattle, and generally such operations of Agriculture or Pasturage as the exigencies and peculiar situation of settlers in a new country may require" (6).

He also looked to them to settle immigrants on their estates. They could engage in mining operations, but only on lands expressly demised or granted to them by the Crown for that purpose, and unless the Crown gave permission they were not at liberty to mine even upon their own lands. This restriction did not apply to quarrying for building materials. He did not approve of their engaging in whaling or sealing on the grounds that the conduct of a whale fishery upon an extensive scale required so much attention, involved so much risk and so large an expenditure that he could not "deem it right to sanction the diversion of the Capital of the Company or the time of its Agents into such a channel"; but loans of money, provided the total amount so used did not exceed £20,000, might be made to private individuals engaged in those pursuits. Although, at the wish of the directors, Sorell wrote of the opportunities awaiting and the benefits arising from the application of capital to the oil fishery (7) he was adamant on the restriction. Within certain defined limits they could contract and carry out any public works and could lend money to private settlers on mortgage and on personal security.

The total extent of money employed in public works was to be confined to £50,000; that on loan to the Government to £100,000; that on mortgage to £50,000, and the mortgages had to be registered; that on personal security to £20,000. Moreover, the power to engage in public works and to lend to the Government was restricted to a period of ten years. Banking and any species of trade other than the disposal of their own produce were wholly forbidden. No land could be purchased in the colony without the Governor's licence, but £20,000 could be expended in the purchase of houses, wharves and buildings.

"The Company will receive their grant," he continued, "in the North-West district of the Island, that district being for the present purpose considered as bounded on the North by Bass's Streights, on the West by the Ocean, and on the East and South by lines drawn from either shore so as to afford the necessary depth of Country. Within that district they will be at liberty to select any ungranted Lands at their own discretion, those lands must, however, be in one continuous and unbroken tract approximating to the form of a Square, as nearly as may be compatible with preserving a clear and well defined natural boundary. The whole quantity of useful land, that is of land capable of being used in pasturage or tillage, to be contained in this square is 250,000 acres; whatever useless and unprofitable land may be unavoidably included in order to complete the square figure will be granted to the Company gratuitously".

Although Bathurst had named no eastern limits for the district, on all occasions Sorell, to whom the Government looked for advice, made it perfectly clear that he recommended the whole of the North-Western quarter of the island, which he defined as that part lying between Port Sorell and Cape Grim, as the area wherein the Company might make its selection. There is no doubt that when Bathurst spoke of the "North-West district" he fully accepted Sorell's definition as did all concerned. Naturally enough, but unfortunately for the Company, no one thought it necessary either to mark on a map the area open for selection, or to ask for a definition of the Eastern boundary and the resulting hiatus in official documents had a serious and harmful effect on its future activities in the island.

The survey and valuation of the land was to be carried out by five commissioners, two appointed by

the Crown, two by the Company, and one elected by the other four. If no agreement could be reached the Governor of Van Diemen's Land was to nominate the fifth commissioner.

The land was to be held in free and common socage, but an annual quit rent amounting to thirty shillings for every £100 of the value of the good and productive land was to be paid. This quit rent was not to become payable until five years after the date of the grant. The Company could redeem it, wholly or in part, by giving six months' notice and paying into the Colonial Treasury a sum equal to twenty times the amount proposed to be extinguished, or in other words at twenty years' purchase. If the Van Diemen's Land Government was able and willing to supply convicts the Company must employ and maintain at their own expense as many convicts as they had free men. The employment and maintenance of these convicts was to be allowed in payment of the quit rent, £16 being the estimated amount saved the Government by wholly maintaining a convict for a year. If within fifteen years from the date of the grant the Company had, by the maintenance of convicts, saved the Government £25,000 the estate would be entirely free from quit rent.

The terms offered by Bathurst (in reality those agreed upon at the interview early in April) were at once accepted and on the 10th June, 1825, Parliament sanctioned the Bill. Although no charter had yet been granted, the understanding with the Government was definite enough to begin operations. The directors purchased sheep and cattle, hired servants under indentures and chartered the brig *Tranmere* to carry them to the colony. At the same time they equipped an advance party to select the land and make the necessary arrangements for receiving the brig and her cargo, persuading Edward Curr to take charge.

In July, 1825, R. W. Hay, who had taken great interest in the project from the beginning and had exerted himself in forwarding its establishment [70], was appointed an additional Under-Secretary for the Colonies and given charge of British possessions in the Eastern Hemisphere [71]. This appointment and the assurance of Bathurst's cordial assistance augured well for the Company.

Favourable as the terms of the land grant were, even better terms were to be obtained. On 15th September Curr wrote asking that the value of the land should be fixed in England and not left to Commissioners as agreed upon. The directors, fearing that "difficulties and delays might arise in a mixed body of commissioners acted upon by local and particular interests" [72] proposed as quit rent a price one-fourth larger than that paid by the Australian Association [73].

This was agreed to and the land granted to the Company was valued at 2s. 6d. per acre of good pasturage and tillage, on which a quit rent of 1½ or thirty shillings per cent was imposed, equal to £468 15s. per annum, which at twenty years' purchase would amount to £9,375 [74]. The matter had been the subject of negotiation for some time. At a conference nearly three months earlier Horton had suggested 2s. 6d. per acre for the Van Diemen's Land Company and 2s. per acre for the Australian Association. Early in August Hay asked Sorell for his opinion. As 250,000 acres of good land were assured he favoured 2s. 6d. With this opinion Edward Barnard, Agent of the Colonists of Van Diemen's Land, agreed [75].

Just before his departure Curr again wrote to Bathurst [76] asking that he recommend the interests of the Company to the protection of the local authorities in the Colony. At the same time he made particular requests about the assignment of convicts, the appointment of a military guard to prevent excesses on the Company's establishments, the survey of lands and the utilisation of natural boundaries, the working of mines and the division of the proposed grant.

A copy of these requests, together with the replies, Bathurst sent to Arthur, entrusting the despatch which contained them to Curr himself. Since the number of convicts required by the Company would tend to decrease most materially the great expenditure which their maintenance caused the State, Arthur was to pay attention to any applications for convicts; but with respect to convict mechanics he was to use his own judgment, taking care that in supplying these he hampered neither public works nor private settlers.

The matter of a military guard was left to Arthur's discretion. The appointment of Commissioners to measure the Company's lands might be waived if the Company's servants were satisfied with the award proposed by the Crown surveyor. Good natural boundaries were to be used wherever possible and if the Surveyor-General reported that it was impossible to grant the lands in one continuous and unbroken tract in the allotted district, Arthur could, upon the written application of the Company's general agent, allow part or the whole of the grant to be taken on any of the islands in Bass Strait, provided no serious inconvenience would result from this deviation from the original plan. As the quit rent and the other terms of the grant were made upon "the principle of the lands being marked out in one continuous tract in the North-West part of the island hitherto unexplored," the Company could not make selections in other districts, closer to the cultivated parts of the island, which would be of more value than the remote quarter to which they were confined. The Company could, if it so desired, work any mines found on its grants [77].

Provided with letters of introduction from Lord Bathurst and Under-Secretary Hay the little band comprising Edward Curr, chief agent; Stephen Adey, superintendent of the Company's land grant; Alexander Goldie, agriculturist; Henry Hellyer, architect and surveyor; and Joseph Fossey and Clement Powell Lorymer, surveyors, sailed on the 12th of October, 1825, from Cowes, via Rio de Janeiro, in the *Cape Packet*, a ship of 200 tons, W. Kellie, captain. Curr and Adey were accompanied by their families.

Hopes ran high. All were young (their leader was only twenty-seven) and they faced the future with expectant enthusiasm. Curr was returning to the island as the chief representative of a wealthy

and influential company. Moreover, Lord Bathurst had named him as one of the six nominee members of the Legislative Council about to be instituted in the colony [3], a sure sign of the esteem in which the Company was held by the Home Government and the support it could look for at its hands. To a man of energy and ambition the prospect was bright. The lure of little voices led on the others no less strongly. They were going to an unknown land where anything was possible. Little did they anticipate the difficulties, anxieties and disappointments that lay ahead.

On the 10th November, when the advance party had been a month at sea, the Company's charter passed the Great Seal. The capital was set down at £1,000,000 sterling to be raised in shares of £100 each. Adequate provision was made to enforce the expenditure of considerable capital in improvements, and no land could be alienated until five years after the date of the grant.

II. LOCATION OF LAND.

On the 14th March, 1826, after a voyage of 143 days, the *Cape Packet* anchored in the Derwent and the passengers gladly came ashore. Immediately on landing, Curr forwarded to Government House the despatches relative to the Company's affairs which Bathurst had entrusted to him, [4] together with a letter from the directors recommending their agents to the Governor's protection and favour, and personal letters of recommendation obtained from friends before leaving England [5]. Arthur showed none of his characteristic austerity of manner. He at once invited Curr to dinner and was extremely courteous and friendly. Curr was delighted with the reception and from the Governor's strong assurances of goodwill came away convinced of his cordial co-operation and assistance.

Much to Curr's surprise, in the course of conversation Arthur mentioned Cape Grim as the locality of the Company's operations. By some neglect of the Colonial Office, it appeared that he had not been kept in touch with the negotiations for the formation of the Company and knew only of Bathurst's reply to Curr of the 15th April, 1825. By the despatch enclosing this he learnt of the establishment of the Company "for agricultural operations generally but more especially to the rearing of flocks of sheep of the finest and purest breed." He was instructed "that the north-west part of the island bounded on the north by Bass Straits, on the west by the ocean, and on the east and south by lines drawn from either shore" was to be reserved until the Company had selected its land, [6] and at once marked off an area of about 500,000 acres at Cape Grim.

By this reservation Curr saw the favourable conditions obtained from the Colonial Office greatly diminished and immediately discussed the matter with Adey [4]. They determined to lose no time in obtaining a greater latitude of selection and on the following Monday waited on the Governor and discussed the position with him at length. Curr quoted Sorell's letter [3] in support of his claim for a wider choice of selection and gave Arthur his "most positive assurance" that Bathurst intended the Company to make its selection in the district between Port Sorell and Cape Grim. The interview ended without any decision being reached, but on the next day Arthur sent for Curr and informed him that he might select the Company's grant within the limits described by Colonel Sorell in his letter to Lord Bathurst [7]. This was subsequently confirmed by letter and he was told that there need not, on account of the Government, be one day's delay in proceeding to select the exact location of the grant [3].

Curr noted with satisfaction the general progress of the colony since his departure in June, 1823. On every hand there were abundant signs of prosperity. The private buildings recently erected were of a better class than formerly and the export trade was rapidly increasing. Every description of property was maintaining its value while the cost of living had substantially decreased. "In a word" he wrote to Inglis "a little more liberality on the part of the Government, a little more personal condescension in the Governor, and success against the bushrangers would make this a very happy colony". The stage seemed set for the speedy success of the Company's undertaking.

Arthur's initial goodwill was again shown by his readiness to supply a small detachment of soldiers. Curr had applied to Bathurst for a military guard to prevent excesses by the convicts assigned to the Company and the state of the colony on his arrival furnished an additional motive for his request. The whole colony was kept in a state of alarm by the depredations of bushrangers and such was the general terror that he found the inhabitants of Hobart mounting guard.

"You cannot figure to yourself any description of outrage which these miscreants have not been guilty of", he wrote, "and nothing is more astonishing than the success which has attended them. One person is in gaol who has committed eight murders, and some of those who are still at large are scarcely his inferiors in crime" [3]. It was the period when Brady, McCabe, Jeffries and Dunn were terrorising the colony. Arthur exerted all his powers against them with such effect that within three weeks of Curr's letter, he could inform Bathurst that "bushranging has been for the present pretty well put down" [8].

By the time Curr was ready to set out to locate the grant there was very little to fear from bushrangers. Arthur well knew that the harmony of an establishment depended on efficient and capable management, not on a display of force, yet, because they wished it, he promised the Company's agents that he would send a few soldiers to their first establishment.

Although Arthur seemed prepared to give the Company the same countenance and support it had received from Bathurst, he was equally determined that the interest of the colony should not be sacrificed to it. He had always doubted the wisdom of bestowing extensive grants in Van

Diemen's Land. Seven months after his arrival, and at the time that the founders of the Company were renewing their application, he informed Bathurst that, owing to the paucity of good land in the colony, the portioning out of the valley from Hobart to Launceston in such extensive grants as had been done was a great misfortune [10]. In the light of this his concern at the granting to one company of 250,000 acres of land, all of which was to be usable, any unprofitable land being granted gratuitously, may be readily appreciated. What the Island needed, he informed Horton two months earlier, was some of the superabundant farming population of Great Britain. "It is men of this description we want even more than large capitalists" he wrote [11]. Then too, he viewed Van Diemen's Land as primarily an establishment for convicts and he saw in the location of the Company in the north-west quarter a threat to the efficiency of his dread prison at Macquarie Harbour. The inhospitable and savage region between it and the inhabited districts had hitherto made escape extremely hazardous and almost impossible but now escapees would find a convenient half-way house, for in the assigned servants of the Company they would find accessories ready and willing to supply food and clothes and to further their escape [12]. He foresaw difficulties in fulfilling the Company's request for assigned servants, [13] and he realised quite well the power and influence of a large and wealthy company of merchants numbering several Members of Parliament among its proprietors, with its headquarters in London and having ready access to the Secretary of State and the Under Secretaries. In spite of these misgivings he was prepared to do what he could for the agents. "They have experienced and shall continue to receive every possible assistance from the local government", he wrote to Hay, "and if the plan breaks down I hope you will have no reason to complain of me" [14].

The voyage out had taken a month longer than Curr had anticipated and he was worried lest the lateness of the season should hamper the search for suitable land. Much to his annoyance he was still further delayed by a legal prosecution arising from the voyage. The excessive monotony unavoidably associated with a long sea journey, and the cramped quarters, bad enough at the best of times, were made unbearable by the captain's disposition and outbursts of temper. A petty tyrant, he lost no opportunity of exercising his authority over both passengers and crew. One hundred and three days out from England matters came to a head. On 24th of January, when the ship had been becalmed for some days, Adey and Goldie asked the captain to let them take one of the boats and go bird-shooting. He peremptorily refused and soon after went below. Then followed an extraordinary incident that reveals the overwrought state of all on board. The mate, Ruxton, who had secretly abstracted the captain's shot belts, ordered a boat to be lowered and, accompanied by Adey, Goldie and two seamen, pulled away. A little later the Captain, Kellie, came on deck and, furious at seeing his orders so flagrantly disobeyed, at once hoisted a signal of recall. Then, seizing a musket from his cabin, he fired three shots at the culprits who at once returned. When they came alongside he roundly abused the mate and told him if he had not returned he would have fired a carronade into the boat and sunk her.

On the 11th February he had another violent disagreement with Ruxton and, accusing him of insubordination, put him in irons. Between 11 and 12 o'clock on the same night two of the crew, Howard and Silver, filed them off.

When he saw the mate at liberty Kellie called all hands aft, asked who had dared release the mate, and ordered the carpenter to put the irons on again. The crew tried to reason with him but he would not listen. Howard stepped forward to intercede and at once the skipper knocked him down. Rising to his feet Howard seized a marlin spike and threatened to run Kellie through if he touched him again. Kellie thereupon drew forth a pair of pistols and, holding one in each hand, drove the mate and the crew before him into the forecastle. Standing in the doorway he again ordered the carpenter to put on the irons and threatened to blow out the brains of the first man who interfered. Reluctantly the carpenter set about his task but his movements were too slow for Kellie who cried out, "You hold him and I will put them on myself," and suited the action to his words. Valentine Hobbs, a member of the crew, then appealed on behalf of Ruxton and asked that he be placed under bond and, if he broke that, the captain could do as he liked. In a towering rage at this interference, Kellie shouted, "Out of this everyone of you", and at the same time fired one of his pistols, wounding Hobbs in the side.

Immediately on arrival at Hobart the officers and most of the men left the vessel. Hobbs laid information against Kellie for maliciously wounding him, Ruxton and Howard applied for warrants against him for assault, and Adey for using firearms with intent to do bodily harm. Defended by Gellibrand, Kellie pleaded in defence that the ship's crew was in a state of mutiny. Curr, Adey, Goldie and Fossey were cited as witnesses and all affirmed that they never saw any mutinous behaviour or disturbance on the part of the crew. For three full days the case dragged on, the court sitting until 9 o'clock each night, and on the last day, Saturday, March 26th, until 11. Gellibrand threw himself into the defence with characteristic energy (at one stage he cross-questioned Howard for four hours) and eventually obtained Kellie's acquittal [15].

Almost another month had been lost by the trial but Curr had made what preparations he could. Men were engaged, carts and horses purchased and every attempt made to get information of the district from Port Sorell westward.

On the 12th of April the advance party left Hobart. On the 20th, the whole party left Mr. Dry's farm on Western River, their rendezvous, and two days later entered the district in which the Company's lands were to be selected—the northern part of the island west of Port Sorell.

Here, bordering on the Port itself, they found that Captain Malcolm Laing Smith, a free settler who had come to the colony under Earl Bathurst's special recommendation, [16] had already selected 2000 acres. Curr immediately returned to Hobart to ask that this selection be not confirmed, on the grounds that Bathurst had ordered the district to be reserved until the Company had made its selection. This objection reopened the question of the district in which the Company might select its lands. Arthur saw with concern the clash between the Company and an individual settler. After a re-perusal of the despatches appertaining to the Company's grant, he informed Curr that he doubted whether Bathurst really intended the Company's grant to be near Port Sorell and qualified his former permission by stating that it must be subject to confirmation from the home authorities [17].

Curr argued dispassionately but strongly in support of his claim. He showed clearly that his interpretation was quite consonant with Bathurst's despatch and that much more latitude of selection must be given than Arthur's original reservation would permit, if the word 'select' were to bear its usual meaning. To Curr the qualification was serious, for he had given Arthur his positive assurance that it had been Bathurst's intention to allow the wide selection he claimed. Arthur, in effect, doubted his word and placed him in a most invidious position. Still, Arthur was in a dilemma! On the one hand he had Curr's positive statement, on the other, his despatches and Curr's own letters to Bathurst which spoke of the Company's land as being "located in the extreme north-west at a distance of several days' journey from the inhabited districts and, as far as it is at present known, wholly inaccessible by land" [18]. Curr himself appreciated Arthur's position and, in placing the proceedings before the directors, wrote, "I am not certain that in his place I should not think as he does." But he must be freed from any charge of duplicity, for the authoritative sketch map of the colony, [19] that of Thomas Scott, Assistant Surveyor General, showed the north-west district completely shut off from the rest of the island by ranges of mountains and established a belief in its remoteness and inaccessibility; and in negotiations Sorell had stressed Port Sorell.

The explanation of this conflict is to be found in the comparatively rapid development of the colony. When Sorell left, settlement was mainly confined to the valley between Hobart and Launceston, shut in on the east and west by ranges of mountains. On the west in particular, the escarpment of the central plateau known as the Western Tiers prevented expansion by a precipitous wall 3000 feet high. Forty miles from the northern coast the wall terminates in a bold promontory, Dry's Bluff, and wheels back at right angles to its former direction. A line drawn back from the base of this bluff in a northerly direction to the sea marked the frontier of settlement at Sorell's departure. Here, only 17 miles west of Launceston, was the last farmhouse, that of Mr. Richard Dry, whose son, Sir Richard Dry, was to win fame some years later as the champion of political liberty. When the Company was authorised to make its selection, this was the limit of settlement known to Curr and Sorell. But between the departure of Sorell and the arrival of the Company's agents the tide of settlement had flowed westward and the country beyond Dry's farm was being eagerly taken up. When Curr arrived, Port Sorell, instead of being remote from settlement, was in reality bordering upon it and a rough cart-road had been formed as far as Simpson's Run which actually lay within the boundaries of the district claimed by the Company's agents as being reserved to them for selection, [20] being nine miles beyond the ford on the Western River and 22 miles beyond Dry's farm. The country west of Dry's, although heavily timbered, was free from scrub and admirably adapted for cattle. The extent to which settlement had taken place is well illustrated by Curr himself. "On the 22nd of April", he wrote, "crossing the River Quamby [21] nine miles from Mr. Leith's we entered, for the first time, the district within which the Company's lands are to be selected. Beyond the Quamby two herds of cattle and one small flock of sheep have been pastured for the last 18 months, and another herd of cattle was brought over after we had crossed. A few carts with provisions for the stock keepers had also travelled this way" [22]. By means of this rough cart-track Curr and his men had ready access to the Port Sorell district.

While there is no doubt, as Curr claimed, that Bathurst intended the Company to select anywhere between Port Sorell and Cape Grim, it is equally certain, as Arthur affirmed, that he meant them to select in a district removed from settlement. His despatches to Arthur, and his letters to the Company's representatives containing frequent statements of the remoteness of their lands, leave no doubt of this. "As the quit rents to be paid by the Company on the lands granted to them", he wrote, "were made upon the principle of the lands being marked out in one continuous tract in the north-west part of the island, hitherto unexplored I am not prepared to authorize the Company to make selections in other districts more adjacent to the cultivated parts of the Island". [23] Curr himself, at any rate while in England, thought of the grant as being remote from the settled districts, for he asked for a military guard to prevent excesses by the assigned convicts, which they might be led into "from the distance of the Company's Establishments from the inhabited part of the colony;" [24] and in an earlier letter, it will be recalled, he wrote of the grant as "being located in the extreme north-west several days' journey from the inhabited districts" [25].

The growth of the colony had thus markedly increased the value of the Company's concession if they were to be allowed to settle near Port Sorell and Curr, as the Company's representative, was determined to make the most of the advantages which the passage of time had conferred. An examination of the district convinced him of its quality. While it contained some utterly barren and useless land, the good land he described as "not surpassed, perhaps not equalled, by any in the island"; [26] and in addition its proximity to the

settled districts was highly advantageous. He had no hesitation in deciding that this should eventually form part of the Company's selection. "I consider it of the greatest importance that Port Sorell with a stream which runs northward into it should form our eastern boundary" he wrote [31]. Here between Port Sorell and the Mersey he proposed to begin farming operations. It was essential therefore that Captain Malcolm Smith's location be not allowed.

Arthur was determined that the Company should not be so placed as to stem the tide of settlement and, placing great stress on the word 'extreme', did everything in his power to force selection further to the west. When Curr in several letters affirmed his interpretation that the Company's selection should begin from Port Sorell and work westward, Arthur replied that it should begin from Cape Grim in the extreme north-west and work eastward. Both referred the matter home.

Meantime the Company's officers were busily engaged in exploring by sea and land all the district between Port Sorell and Cape Grim. On the 1st of July, Adey landed at Circular Head and was delighted with the beautiful and comparatively open country he found. Here, instead of the dense unbroken forest further east, were "tracts of from 200 to 500 acres of clear and grassy lands, and hills not so heavily timbered" [32]. The harbour he found good, the anchorage excellent, and there was no want of fresh water. From this and other reports it seemed to him a place admirably adapted to the Company's purpose, the production of fine wool. As the *Tranmere* with the first consignment of live-stock was expected in a few weeks he was anxious that the location should be settled as early as possible. These reports, coupled with the Governor's determined opposition to a grant in the Port Sorell district, brought a decision to occupy Circular Head [33] as a beginning. A letter from Adey [34] a fortnight later, stating that Goldie had found in the vicinity of Circular Head and Cape Grim from 50,000 to 70,000 acres of good land of service to the Company, reinforced this decision and inclined Curr a little more favourable to Cape Grim.

On the 30th of October, 1826, nearly a week after Circular Head had been occupied, Curr, bowing to the inevitable, wrote Arthur to the effect that he accepted his ruling in the location of the Company's land, but he in no wise retracted from his former statement that it was Bathurst's original intention to permit a selection anywhere between Port Sorell and Cape Grim. His own words are a clear and effective statement of his position.

"I beg leave to state that it is my unaltered opinion that the words of Lord Bathurst's various despatches . . . do clearly authorise the Company's Commissioners to select their lands anywhere within the north-west quarter of the Island; but it is not inconsistent with this opinion to admit that the different view, which His Excellency has taken of His Lordship's meaning, proves that reasonable doubts may be entertained whether I have correctly understood the meaning or not. It is more than probable that, when the question is referred to Lord Bathurst, his Lordship will know nothing from recollection, and will only be able to ascertain what his intentions were from what appears on the record of the despatches which His Lordship wrote at the time. His Excellency has shown me that a conclusion diametrically opposite to that which I have arrived at may be drawn from those despatches; there would be a considerable risk, therefore, in acting upon my own understanding of them, through His Excellency leaves me at liberty so to do; for, should I be in error, the consequence would be that His Lordship would not confirm the grant selected for the Company; much time and money would have been expended upon the Lands which afterwards must be vacated, a risk which I do not feel myself authorised to incur" [35].

Had no obstacle been thrown in his way he would have chosen the land near Port Sorell and he therefore claimed the Company had an equitable claim for compensation, because he had been compelled to take a less valuable grant than they were entitled to. He expressed himself as determined to point out to the directors the compensation he considered would most nearly balance the loss. He was equally resolved to lose none of the concessions and, lest his acceptance of Arthur's ruling in regard to the location might be regarded as surrendering the right to make a selection on the islands in Bass Strait, he definitely stated that he did not relinquish this privilege.

At this time he was considering King Island as forming part of the Company's grant. He had received flattering reports [42] of the island and was awaiting with interest the result of the survey which Arthur, fearing that the value of his penal settlement at Macquarie Harbour would be diminished if the Company's grant were placed at Cape Grim, had instituted in the hope of finding land suitable for the pasturing and rearing of fine woolled sheep, the Company's avowed purpose; or failing this, of estimating its eligibility for a penal establishment. The report though not available until August, 1827 proved the island unsuitable for the Company's purpose.

Curr at once advised his directors that, as he had not been allowed the freedom of choice agreed upon in England, they should claim as compensation 10,000 or 20,000 acres "the best and in the best situation near the settled districts, and beyond the Ouse, which can be found" [33]. In support of the claim he stated that, with the exception of the south-west quarter, he considered the district of Cape Grim the worst adapted in point of situation of any land in the island for the Company's purpose" [34]. Moreover, the climate was less serene and mild than that of the eastern districts. He had brought the suggested grant in the Ouse under the notice of Arthur, who was disposed to give the Company the occupation for two or three years to help them over the difficult period of beginning. This did not satisfy Curr at all. "If I accept of this" he wrote "it will be principally with the view of gaining time which the Court may employ in exerting what influence they may have with the Colonial Government at home to obtain a

grant of the reserved district as part of the 250,000 acres assigned to the Company" [35]. Thus we see the fear so often reiterated in the Van Diemen's Land papers, that the Company would exert its influence to undermine the local government, was very real.

A fortnight later Curr applied for a grant of land west of the River Ouse, on the grounds that he needed a depot for such stock as would be purchased until it could be driven to the Company's own lands [36]. He asked for a two years' possession. Arthur referred the application to his Executive Council. Curr, as a member, was present when the application was considered and was asked to explain the purposes for which he required the land. He stated that he intended to purchase 10,000 sheep at once and, as no overland route to Circular Head had yet been found, he needed a temporary pasturage near the settled sheep districts. After mature deliberation the Council considered it but reasonable to grant his request, provided the location was not near enough to the settled districts to cause any inconvenience to free settlers who might arrive during the period of possession. Fearing that the temporary occupation might become permanent, the Council added a rider to the effect that it would not be advisable to make a permanent grant of land to the Company in the neighbourhood of the settled districts and so far removed from its grant [37]. Hedged in by such restrictions, the concession was useless and Curr soon abandoned it. Arthur had correctly divined the meaning of the thrust and, by calling in the Executive Council to his aid, had cleverly countered.

While it gave great satisfaction to Arthur to know that the Company had made a beginning at Circular Head, he was fully aware that the dispute was by no means over. The Company was to receive 250,000 acres of "land capable of being used in pasturage or tillage", and here was ample room for difference of opinion. The granting of land on such a principle was quite novel in either New South Wales or Van Diemen's Land. No free settler obtained his grant in this way, and the Australian Agricultural Company received nothing but a straightout grant of 1,000,000 acres. Curr made no secret of the fact that to obtain the requisite amount of suitable land a vast area would be necessary. "It may take 1,500,000 or 1,800,000 acres to include the 250,000 acres of useful land", he wrote to the Directors [38], and in a later despatch [39], he thought even 3,000,000 acres might be necessary.

This he told Arthur, who was highly indignant at what he considered sharp practice, asserting that Curr had played upon the ignorance of the Colonial Office and had used his personal knowledge of Van Diemen's Land to obtain a concession detrimental to the interests of the colony. Whether, with Arthur, we regard this as a piece of chicanery or, with Hay, as a legitimate stroke of business [40], there is no doubt that he had gained a valuable concession for the Company. "I submit," wrote Arthur to Bathurst," that it would have been better to have given the Company a million or even two millions of acres upon the principle of admeasurement observed towards the Australian Company [41]: for from the unequal quality of the soil and rugged features of a large portion of Van Diemen's Land, the manner of taking the Company's land must lead to their occupying a vast extent of the country. According to Mr. Curr's present idea scarcely less than one fourth of the whole island, the whole North West quarter, will give such a grant as to quality as it was intended by Your Lordship that the Company should possess: so that Mr. Curr, although setting out from Cape Grim, may yet anchor the Company's vessel which he is steering in the much desired haven of Port Sorell" [42]. But of his opposition he left no doubt: "I cannot approve of their occupying such a space as must operate in a very great degree to the exclusion of future settlers" [43].

In a letter to his directors Curr was no less definite: "If these conditions of giving the Company 250,000 acres of useful land be correctly acted upon, the badness of the great majority of the north-west quarter of the Island will have this obvious advantage that the further the limits of the land extend the nearer they will approach the settled districts" [44].

Arthur was hopeful that 100,000 acres would be found in the vicinity of Cape Grim without detriment to future settlers. For the location of the balance he had other plans which would enable the Company to obtain the necessary suitable land without injury to the Colony. On the morning of the 15th of November he sent for Curr and suggested that the Company obtain the right to select a portion of its land in Australia, pointing out Westernport and King George's Sound as two likely localities. Curr considered King George's Sound too remote, but was pleased with the thought of Westernport. Attention had been directed to this district by a report, published in 1825, of a recent overland journey made to the south coast of Australia by Hume and Hovell. They had found excellent country admirably adapted for sheep on the western shores of Port Phillip but, by an error in their reckoning, thought they were further east. Consequently the report spoke of the excellent country at Westernport and it was this district which Arthur now suggested.

The official ignorance of Australia generally is well illustrated by Arthur's despatch to Bathurst and by his conversation with Curr. The charter of the Australian Agricultural Company decreed that no rival incorporated or joint stock company could be established in New South Wales, which, at this time, was defined as extending from the latitude of Wilson's Promontory in the south, to the latitude of Cape York in the north, and from the east of Australia as far west as the 129th meridian. As Westernport lies within these limits it is obvious that the Van Diemen's Land Company could not obtain land there. But Arthur was fully convinced that Westernport was not within the territory of New South Wales, spoke of it as being not more than four hours' run from George Town on the Tamar, and was sure that Bathurst would "willingly and even gladly entertain such a proposal from the

Company "(5). He further proposed to Bathurst that portion of Australia lying west of the 129th meridian be placed under the Government of Van Diemen's Land and spoke of there being with this territory "a very ready intercourse across the streights". His ignorance of the distances involved is remarkable. Westernport is 200 miles from the mouth of the Tamar and is separated from it by a strait notorious for inclement winds and rough seas; while any settlements made west of the 129th medidan would be more than 1200 miles from the Tamar, and scarcely to be described as having ready intercourse.

Curr at once fell in with Arthur's suggestion and strongly advised the directors to approach Bathurst with a view of obtaining all but 100,000 acres of their grant at Westernport, quoting as a precedent the Van Diemen's Land Association, which was permitted to take 10,000 acres in Van Diemen's Land and 10,000 acres at Westernport. He further advised them to solicit a larger extent of land, pointing out that Bathurst had granted only 250,000 acres in Van Diemen's Land because of the restricted area of the island but this limitation would not apply to Australia. If Curr had forgotten that the Company was restricted by its charter to Van Diemen's Land the directors had not, and the proposal was rejected.

The important question of the quality of the land that the Company was bound to accept, Arthur referred to the Executive Council. This, and the application for a temporary grant on the Ouse, had been listed as Council business for the same day, but the discussion on the quality of land was so prolonged that consideration of the grant had to be deferred until the next meeting. Arthur asked Curr to draw up a Minute of his claim (6) for consideration of the Governor-in-Council. It was clearly and ably drawn and Curr was present to explain, discuss and enforce its contents. The whole question turned on the interpretation of Bathurst's amplification of the term useful land, "that is land capable of being used in pasturage or tillage".

Curr maintained that land covered with a dense forest of heavy timber and producing no grass, even if the soil was good, could not be classed as useful land within Bathurst's meaning. Although it was true that such land could be made useful by clearing, yet the excessive cost of the operation made it, in Bathurst's words, useless and unprofitable. The terms of the Company's grant, he argued, differed greatly from that of individuals. They received a grant in gross and must take the good with the bad, but the Company had received a net grant. He was entitled to take only such land as could be put under the plough with little or no expense for clearing or, if not suitable for cultivation, could be used as pasture: the worst kind of land he should be expected to accept was that which in its natural state produced grass and was at least capable of being used as pasture land.

The Council considered these expectations unreasonable and advised Arthur to refer the subject to Bathurst for further instructions as to his intentions, pointing out that it would require nearly one-quarter of the Island to provide a grant such as described by Curr. Furthermore, Bathurst had refused a gross grant of 500,000 acres as excessive, and they could not assume that he intended to make a grant at least five times as extensive(7). These were the arguments Arthur had used weeks before. Secure in the support of his Council, he found its concerted opinion a substantial makeweight against any representations made by the court of directors in England.

Meanwhile the Company's officers pushed on with the exploration of the north-west district in an endeavour to find a suitable area. In February, 1827, Hellyer discovered in the vicinity of St. Valentine's Peak, about 25 miles from the north coast, two extensive tracts of open country, the smaller of which he named the Hampshire Hills, the larger, the Surrey Hills. He gave a glowing report of his discovery, and wrote of "gently rising, dry, grassy hills resembling English enclosures in many respects, being bounded by brooks between each, with belts of beautiful shrubs in every vale". The whole country he described as being grassy: timothy, foxtail, and single kangaroo constituting the chief grasses. Here he ascended the most magnificent grassy hill he had seen in the Island, beyond which there was not a tree for four miles. Kangaroos, a sure sign of the goodness of the soil and herbage, were abundant. The trees were dotted about as in a park, each a hundred yards from the others, but affording the requisite amount of shade for flocks on a summer's day; on all sides arose grassy hills without number. Across the district ran a brook the banks of which were green with trefoil. "Brooks with hard pebbly bottoms free from mud, and the water as clear as crystal, traversed the country in all directions"(8). Fossey, another surveyor who was instructed to enter the Surrey Hills from the eastward, confirmed Hellyer's report. The country in the vicinity of the Leven he represented as "having very much the appearance of a nobleman's domain both as to extent and good quality". The whole district, so far as he was able to ascertain from actual observation and appearances, was "a tract both as to extent and other qualities likely to suit the purposes for which it is required"(9).

Curr received these reports with delight. Here apparently was land eminently suited for the Company's purpose, but he was not disposed to relinquish Circular Head and there was some most desirable land at Cape Grim. To retain these districts and acquire the new land must involve another conflict with the local government, because either the grant must be broken into separate locations, or the Company must acquire at least one-sixth of the Island. Nothing daunted he resolved to use every effort to secure the land discovered by Hellyer, and recommended his directors to do the same(10). Because there was insufficient good land at Cape Grim, he declared his intention of making a settlement at the Hampshire Hills early in the next Spring.

This decision was barely reached when despatches from England brought Bathurst's decision as to the extent of country wherein the Company might select its lands. When Curr's letters telling of the dispute with the local government about location reached

England, the directors at once approached Hay with reference to an interview relative to the matter. James Inglis, as chairman of directors, met Hay and Horton at the Colonial Office and proposed a north and south line through Port Sorell as the eastern boundary and an east and west line through Mt. Heemskirk as the southern. Hay would not agree to this as it would interfere with land already allotted to, or considered requisite for, grants to private settlers. However, as there was some doubt of what passed when the agreement was under discussion, it was necessary to have a meeting with Colonel Sorell and Mr. Barnard who were present at the earlier negotiations.

Accordingly on the 28th December, 1826, the Company's representatives, James Bischoff, Captain Dundas and James Inglis, met the two Under-Secretaries at the Colonial Office and found Colonel Sorell and Mr. Edward Barnard already in attendance. A map was produced and Sorell was asked to describe on it the boundaries of the territory he had in mind when he wrote to Lord Bathurst on the 2nd April, 1825. His reply was a strict confirmation of Curr's statement: "He had in contemplation that the Company might be allowed to begin their survey westward of Port Sorell and to follow the northern shore of the Island to Cape Grim. He did not contemplate that they were to be limited in the first instance to any number of acres, particularly so near to Cape Grim as appeared to have been understood in the Island" (31).

As a result of this it was agreed that a letter should be sent to Bathurst asking for his approval of the boundaries asked for by the Company and that it should be accompanied by a map of the north-western part of Van Diemen's Land upon which was traced two inland lines as suggested by Sorell.

Realising that the difference of opinion between Arthur and Curr arose from inconsistencies in the wording of the agreement, Bathurst compromised. While he agreed that he meant that there should be a much greater latitude of selection than Arthur had conceived, yet he was insistent that he never intended the grant to border on the settled districts. That this was well understood by all he proved, as Arthur before him, by citing as evidence Curr's letter written on the eve of his departure from England, in which he stated that the part of the Island in which the Company's lands were to be located was in the extreme north-west at a distance of several days' journey from the inhabited districts, and as far as it is at present known wholly inaccessible by land" (32). However, he was prepared to meet the Company and if land in the remote districts was, after an examination made by the Surveyor-General, found unfit for the feeding of sheep, the land might be chosen anywhere within the limits marked out on the map sent him (33), that is between Port Sorell and Cape Grim, and he would instruct Arthur accordingly.

That there might not be any future misunderstanding in determining the quality of the land that should be considered adapted for their purpose, he laid it down that, as the breeding of fine woolled sheep was the Company's principal object, "the fitness or unfitness of the land which may be surveyed for the use of the Company must principally depend on its suitableness for Sheep Pasturage" (34). This was what Curr had always maintained, and the directors were no less insistent on such a view:

"The Court have in all their views and plans for forming the Company calculated on the acquisition of large tracts of natural pasturage at least for sheep; with only partial or occasional improvements by tillage" (35). Three months later they were told that a small grant of land would be made to them on the shores of Port Sorell, if it were advantageous to them (36).

There was, however, to be a limit to the amount of land received. Before long Arthur received further instructions and a definite ruling on Curr's claim to take in an area equal to a quarter of the Island, if necessary, to get the requisite good land. Bathurst expressed surprise at Curr's claims, and showed that in the preliminary discussions with the Company he had expressed a doubt as to their finding unlocated land available for their purpose, but that the Company's representatives declared that they were able to show that an infinitely greater quantity of land adapted for their purposes would easily be found, "distinct and wide from the present located districts" (37). He could not consent to allow them to occupy so vast an area of country as to bring them into contact with the settled districts, or inconveniently near the penal settlement of Macquarie Harbour. If sufficient land were not available on the main, then recourse was to be had to the alternative suggested by Curr just before he left England, that portion of the grant should be taken in one of the dependencies of Van Diemen's Land. As to compensation, he refused to admit that the Company had the slightest claim.

It will be recalled that when Curr prepared a minute for the Executive Council he stressed that the Company expected to obtain lands that were suited for sheep pasture without any clearing and we find the directors strongly supporting this claim: "The Court have in all their views and plans for forming the Company calculated on the acquisition of large tracts of natural pasturage, at least for sheep; with only partial or occasional improvements by tillage" (38).

The result of the appeal to Bathurst reached Van Diemen's Land most opportunely for Curr. No longer confined in his choice of lands to the north-west corner, he could enter into fresh negotiations with the local government. True, the southern limit as marked on the map intersected the land discovered by Hellyer, but he thought that by the concerted efforts of the directors at Home and himself in the Colony these limits could be extended (39). As to Circular Head, he was determined it should be retained no matter where the rest of the grant should be placed.

Accordingly, although the good temper which had marked the earlier negotiations had long since departed, he entered into a long personal conference with Arthur with satisfactory results. An officer of the Survey Department was to be sent to examine the district at Cape Grim where it was thought that from 100,000 to 150,000 acres of land suitable for the Company's purpose would be found. Arthur also

promised to recommend to the Secretary of State that the grant be broken into three separate portions, the first to comprise an area at Cape Grim, the second all the available land at Circular Head, and the third to take in the Hampshire and the Surrey Hills and, in addition, that the Company be allowed to move the southern limit of location a few miles to the southward for this purpose. By this agreement, in reality a compromise, Arthur kept the Company to the west of Round Hill and Curr obtained Circular Head and the new country. Arthur, however, had gained his point. The Company must begin from Cape Grim and work eastward and be confined to a district far removed from the settled districts. Once more he had shown "his cleverness and the adroitness with which he parries all attacks and triumphs over all his enemies"[80].

Meanwhile the directors for their part were not idle, and sent a deputation to Downing Street. Robinson, better known by his later title of Lord Goderich, had succeeded Bathurst at the Colonial Office and gave them favourable audience. As far back as September 1826 Curr had written that he did not think the land could be obtained in one continuous block, a hint which the directors now acted upon. They sought permission to select their grant in detached portions free from forest in the north-west and the north-east of the Island and asked that a small allotment be granted on the route from Hobart Town to Circular Head as a place of refreshment for travellers and stock in passing to and fro. As no objection was made to these proposals, they were sanguine that they would be allowed and were further heartened when a despatch to Governor Arthur, wherein he was asked to put the most liberal construction on the agreement with the Company, was read to them[81].

But the hopes of the directors were short lived. The Prime Minister, Canning, died on the 8th of August and, a few days after the deputation, the King sent for Goderich to form a cabinet. Huskisson went to the Colonial Office. It was essential to gain his support before he could be influenced by Arthur's despatches. So, armed with a sheaf of reports which had just arrived from Van Diemen's Land and copious extracts from Curr's despatches, they again presented themselves at Downing Street. The quality of land they wished to obtain they defined as "open downs covered with a natural grass or herbage and suitable to the pasturage of fine woolled sheep, with a due proportion of arable land, meadow and woodland for other necessary operations"[82].

They now realised, from the reports of their officers, that they could not obtain this quality of land in one block without acquiring so vast an area that its occupation would be considered detrimental to the Colony. As the greater part of such an area would be useless for their purpose, they asked that their agents be permitted to take detached portions of useful land anywhere in the north-western quarter from Port Sorell westward and from Macquarie Harbour northward and, if unable to satisfy themselves there, to examine and select in the north-east.

Two years had elapsed since Curr and the advance party had left England and, as the annual meeting was approaching, the directors wished to assure the proprietors that definitive and satisfactory arrangements had been concluded. They saw in the opposition of Arthur the rock upon which their vessel might split and accordingly asked that he be instructed to lose no time in directing the Crown surveyor to survey and report upon the quality and area of such tracts of land as were pointed out to him by their agents and that the 250,000 acres of useful land be defined to mean "good land, fit for cultivation or pasture, free of forest, scrub, or swamp and such as the Company may immediately put to use"[83].

They knew, they said, that such a claim could not be substantiated merely by the terms under which the grant was made by Bathurst, wherein one of the primary objects on which the Company was to spend its capital was "the clearing, improvement and cultivation" of the grant and "generally in such operations of agriculture and pasturage as the exigencies and peculiar situation of settlers in a new country may require"[84]; but, at the initial negotiations, it was clearly understood on both sides that the Company's lands were to be sheep pastures similar to those of the older districts where clearing was not a difficult matter. It was never intended that the Company should be expected to take up dense primeval forest which could be cleared only after vast labour and expense.

Huskisson proved far less compliant than Goderich. He would not agree to any extension of the area open for selection because "it was clearly understood that the grant should be made in a part of the Island distant and distinct from the present located lands". Nor would he sanction the Company's definition of useful land and regarded the expectation of the directors as unreasonable because "in any new country the clearing of timber has always formed one of the principal operations by which it has been settled. Any land that could be cultivated must be regarded as good land for the Company's purpose"[85]. He brought to the problem a mind free from any preconceived notions and, taking the words of the terms arranged by Bathurst at their face value, ruled that "within the district described, the Company might select any continuous tract of 250,000 acres which best suited their object and purposes. It was the liberal intention of His Majesty's Government not to reckon as part of the grant any additional quantity of strictly useless and unprofitable land which it might be necessary to include, in order to keep the figure of the whole tract as near to a square as possible (that square being the smallest in which 250,000 acres of land capable of being used in pasturage or tillage could be obtained) and to afford to such a tract a better natural boundary"[86]. Realising however that the difficulties encountered were far greater than anyone had foreseen, he decided to meet the wishes of the directors to some extent and allowed them to break the 250,000 acres into four or five allotments, none of which was to be less than 50,000 acres; and limited the useless or unproductive land to one-fourth of the useful land, or 62,500 acres in all. But at the same time he intimated that there would be some addition to the amount of quit rent.

Arthur received this with consternation. The terms now agreed upon were much more favourable to the Company than any Curr had claimed and, in effect, would be much more harmful to the young community. He saw all his defences swept away and the Company "boldly planting themselves at the very portals of the located districts"(67), for the restriction that necessity alone should bring them adjacent to the free settlers was no longer imposed. The new arrangement would also enable the Company's agents to "peacock" the whole district between Port Sorell and Cape Grim. Five locations judiciously placed would lock up a vast area and hamper future settlement. Not only would access to some districts be made extremely difficult but, as the Company was not bound by the charter to fence, its cattle roaming far and wide would bring ruin to the small settlers shut in between the locations. He was determined to keep the Company west of the Mersey and, if at all possible, west of Round Hill. Accordingly he called for reports from the Land Commissioners and from the Surveyor-General on the location and arrangements of the Company's Lands. By their aid he hoped to convince Huskisson that his ruling had been based on false information and so obtain a review of the conditions.

These reports, as well as a later one by Wedge,(68) bear every sign of having been inspired by the known wish of Arthur and betray the sycophancy of his officers. They pointed out that it was never intended that the Company should approach the settled districts. Indeed, the Surveyor-General ingeniously called in mathematics to his aid and proved that the north-west district, the term used by Bathurst which Curr construed as one-fourth of the Island, was in reality only the ninth part of it and that not Port Sorell but Round Hill should be the eastern boundary of the land open to the Company for selection(69). These reports, together with a covering despatch, Arthur at once sent to Huskisson.

Two months later an opportunity to renew his protest arose and he promptly accepted it. At the beginning of the year he had instructed a Government Surveyor, J. H. Wedge, to examine and report on the land adjacent to Cape Grim. This report was now to hand. In it Wedge recommended that the limits of the grant be extended and that a compact block, extending from Cape Grim as far south as Mt. Balfour and as far east as the Detention River, be granted the Company. In this block he estimated there was "at least 50,000 acres of land fit for the reception of stock without any considerable outlay being required". The useless land he estimated at about 100,000 acres. "The forests", he wrote, "are extensive and may be estimated at about 700,000 acres. This land, being heavily timbered, is unpromising in its present state and such as no private individual could possibly undertake to improve. It is, nevertheless, of excellent quality and such as the Company's resources might be employed upon with prospect of ultimate success. There is no doubt but the expense of clearing such land will be great: but, if a judicious system be laid down and acted upon, it will not be so heavy as it would appear at first glance; for, if it be progressively done, the produce of that which is first cleared will contribute largely towards improving the remainder. The timber in these forests, of which the greater portion is pencil cedar(70), may prove a valuable article of export and defray a great proportion of the expense of clearing the land. It is therefore my opinion that this description of land is available for the Company's purpose for it will undoubtedly, when cleared, be some of the most valuable in the Island; and, in support of this opinion, I may instance that in the United States and other New Countries in America, the land with the greatest quantity of timber upon it is chosen as being the most valuable"(71). The Surveyor-General minuted the report to the effect that Mr. Wedge had stated that the district he recommended for the Company bore a far greater proportion of good land than Van Diemen's Land generally offers. The report thus minuted, together with a covering letter hostile to the Company's requests, was at once forwarded to Sir George Murray who had succeeded Huskisson at the Colonial Office, but a copy was not sent to Curr lest the directors be forewarned and supplied with an adequate defence. His comment when he was able to read the report was outspoken and bitter: "I look upon both his facts and opinions as wilful falsehoods and malevolent assertions".

The terms of the new arrangement with Huskisson Arthur at once forwarded to Curr but bluntly challenged it by declaring "I apprehend the decision rests entirely upon the faith placed in your reports, of the accuracy of which I am at present unable to form any positive opinion"(72).

The implication of this, coupled with the fact that Arthur had emphasized that the Company must take such land as when cleared would be useful, stung Curr to fury and blinded him to the advantages of the decision. Quite erroneously, as we have seen, he saw in the conditions the hand of Arthur. That the Company must take land that "when cleared will come under the denomination of useful land" was, he considered "in direct contradiction to the grant as intended, and to be given a stringy bark forest for the purpose of breeding large flocks of fine woolled sheep was a mere mockery"(73).

But the location of the grant had advanced a further stage before the despatch which stirred Arthur's indignation had even reached him. Hellyer's report of the Surrey and the Hampshire Hills arrived within a few weeks of the deputation to Huskisson and in the middle of December, 1827, the directors appeared at Downing Street with a fresh proposal. They asked for a southward extension of the boundary of selection so as to take in the Surrey Hills. "The main object of the Company" they explained "always had been and is to settle a large sheep farm for the growth of an improved wool for which it is indispensable to have a large tract of naturally clear land well adapted for sheep pasture. This object was in all the early communications with His Majesty's Government clearly explained and enforced by a variety of arguments. Hitherto no sufficient tract of that description has been found after 16 months of indefatigable exertion but in the Surrey and the Hampshire Hills"(74). They also asked that the suggested increase in quit rent be not enforced.

The upshot of this deputation was an agreement by which the Company was allowed to take one block of 20,000 acres at Circular Head, 220,000 acres in two blocks at the Hampshire and the Surrey Hills, and one block of 10,000 acres in the vicinity of the lakes as a depot or resting place for those employed by the Company and for stock on their journey to the capital, with an allowance of one-fourth more for useless land. It was expressly stipulated that the blocks were to be as compact as possible and on no account would narrow strips or tongues of land be granted. As the Company had spent so much money in exploration and as they would be under the necessity of constructing a road to the Surrey Hills at considerable cost, the original valuation of 2s. 6d. an acre was to stand; but for the block at the lakes they were to pay according to its estimated value to ordinary settlers(75). Except that no land was to be taken at Cape Grim, this was almost identical with the arrangement that Arthur and Curr had agreed upon some months earlier.

In spite of this agreement, Wedge's report occasioned the directors great uneasiness. They were by no means sure what the effect on the new Colonial Secretary would be. They urged Curr "not on any account to come into conflict with any officer under Government which may give rise to unpleasant feeling". To them Wedge's recommendation was anathema: "The Court has no hesitation in giving its unanimous opinion that, if it was compelled to take its land in the district examined by Mr. Wedge or to abandon its object altogether, it would under such alternative submit to the loss of all the money expended, great as it is, rather than accept land of that description"(76).

When we regard the issue from the viewpoint of Curr and the directors there is much to be said for their request that they should not be saddled with forest land. The Company's main object was, and always had been, the growth of fine wool. This the directors maintained on all occasions without contradiction and this Bathurst recognised when he ruled that the criterion of the land to be allotted was its capability to pasture sheep. They had looked forward to obtaining land similar in quality to that of the older settled districts, where there were considerable areas naturally clear of timber; where dry, thinly wooded hills producing in abundance the highly nutritive native grasses provided ideal conditions for pasturing fine woolled sheep. There was almost total ignorance of the land lying to the west of Port Sorell, but no one anticipated that it would prove quite unlike the settled districts and it was confidently expected that the Company would find sheep pastures there equal in quality to the best in the older districts.

It was to prove far otherwise. Arthur had no conception of the great differences that existed and in consequence could not understand Curr's objection to forested land. All the good land in the north-western district was, almost without exception, clothed right down to the sea-coast with dense forest. Near the coast the prevailing trees were eucalypts, white gum and stringy bark, towering aloft often 250 feet; further inland these were replaced by sombre beeches, the myrtles of the colonists, of great size. In the dense shade of the forest mighty tree-ferns grew in profusion and the ground was carpeted with a small fern and bestrewn with dead timber. In many places horizontal, bauera and cutting grass formed a tangled impenetrable mass and forest giants torn up by the roots were strewn in every direction. Those most recently fallen, with their vast upturned roots, wide spreading heads, and wall-like boles (for trees 150 feet high and eight feet in diameter were plentiful) formed a most formidable obstacle to progress. Then, too, the fall of each monster caused a widespread confusion of smaller trees.

Some idea of the density of the forest may be gathered from the report prepared by Hellyer for use in discussing with the Government what was to be considered useful land. On one acre there were 2384 trees, 12 of which exceeded 12 feet in girth, and four, 30 feet. On another there were 1976 trees, 28 of which exceeded 12 feet in girth, eight 21 feet, and eight 30 feet(77). This was typical of most of the forest.

Curr gives us a graphic picture of his first journey through the forest behind Emu Bay. "The myrtle tree, scarcely known except in this district, and enormous stringy bark trees, many of them 300 feet high and 30 feet in circumference near the root, exclude the rays of the sun and, in the gloom which their shade creates, those trees flourish which affect darkness and humidity and in the other parts of the Colony are only found in the deepest ravines and by the sides of creeks, as sassafras, dogwood, pepper tree, musk tree, and in some situations blackwood of the best quality. The forest trees and undergrowth described, which latter rise to a height of from 80 to 100 feet, create and retain on the ground such great degree of humidity and almost dungeon darkness that all the tribes of cryptogamous plants flourish there to a degree that I never observed in any other situation, fungi, mosses, lichens, ferns. The most remarkable of these plants, the fern tree which has precisely the form of the cocoa-nut tree with a stem of often seven feet in circumference near the ground gradually increasing in girth towards the top, grows to the height of 35 feet. Every trunk, stem, root and branch of every kind of tree is closely invested with a thick coat of moss, this moss again becomes the receptacle of the roots of parasitical plants as well as of others not generally parasitical, and these, in their turn, nourish their share of moss and ferns which latter often invests the trunks of the fern trees and their summits and of the forest trees to the height of near 100 feet from the ground (78)". As they passed along Hellyer pointed out a stringy bark which he had measured and found to be 198 feet to the first branch, and another which at five feet from the ground was 60 feet in circumference. Some idea of the difficulty of making one's way through such country may be gauged from the fact that it took him nearly a day and a half of strenuous exertion to cover four miles, and anyone who has had experience of such forest knows full well that this is no exaggeration.

No greater contrast with the older settled districts could be imagined. Curr realised full well the excellent quality of the soil but he also knew that, before sheep could be pastured in such

country, it must be cleared and sown down with grass. The cost of clearing such land would be so great that for the company's purpose it must be regarded as unprofitable.

Seven months after the discovery of the Hampshire and the Surrey Hills, Curr paid his first visit to them. From the reports, he had been led to expect country equal to the best in the older districts, but was sadly disappoined. Neither Hellyer nor Fossey knew anything about sheep, they had no colonial experience and, to Hellyer in particular, artist that he was, the appeal of the picturesque was paramount. And the Surrey Hills, seen as they were by him for the first time, in bright sunshine, the blue expanse of the heavens broken and heightened by a few fleecy clouds, the level park-like country stretching before him interspersed with open plains, the countless mountain peaks beyond, standing aloft in all their glorious colours and entrancing shapes, the cool limpid streams crossing in all directions, and the invigorating air that sends the blood coursing through the veins, would charm and take captive one of far less romantic nature than he. The sheer beauty disarmed his judgment and forced its way into his report.

Unaware of this weakness Curr took the reports at their face value and acted upon them. Keen was his disappointment and bitter his thought when he realised he had striven and fought for such an inferior district, whose "value to the Company was to say the least very doubtful". Now, more than ever, he realised what had been a daily cause of regret to him since his landing, that none in the service of the Company had any knowledge of local conditions. "The Surrey Hills", he wrote, "can never be a first nor even a second rate sheep pasture. Neither was that which I saw good arable land. Another disadvantage is that the climate is rather cold and backward"[70]. His opinion of the Hampshire Hills was more favourable and he considered that it would be suitable for sheep but would not bear to be heavily stocked. The natural grasses he examined and found to be inferior to those of the sheep lands of the older districts and noted that there was a striking absence of kangaroo grass, so highly prized by sheep owners. He looked in vain for the large forest kangaroo which was always considered by the older settlers to be indicative of a good sheep country. Further visits to the district confirmed him in the unfavourable opinion he had formed of its usefulness to the Company and the experience of the winter of 1828 proved that his opinion of the Surrey Hills was accurate. Only too well he realised that they had made a very bad bargain and deeply regretted the rejection of the land around Cape Grim. The best that he could hope for was that it might be made profitable in some manner.

He must take some measure of the blame for securing the district, in that he did not assure himself of its nature soon after its discovery, either by a personal inspection or by calling for a report on its capabilities from Goldie, the Company's agriculturist. As chief agent he should have done so. He knew that neither Hellyer nor Fossey were versed in matters appertaining to sheep and sheep rearing and had no experience whatever of colonial conditions, even though he did not know of Hellyer's weakness "of looking upon everything with a painter's eyes". The latter's inability to report on sheep country was amply confirmed a few months later. Goldie, reporting on Goderich Plains, said by Hellyer to be the most magnificent grass hills [71] he had seen in the country, described them as "very high, cold and bleak, the feed very bad with a great deal of stoney rocky ground, the grass being very wiry and the tussocks far apart"[72]. Picturesque the area certainly is but that is all. Bitter is Curr's comment on the conflicting reports. "Climate cannot be judged in a day's walk, but stoney rocky ground with tussocks far apart no person ought to have converted into the most magnificent grass hill he had ever seen in the country." The lesson was not lost on Curr. He no longer accepted any report at its face value.

Hellyer's glowing accounts, published in the Third Annual Report, stirred in Arthur a desire to see this magnificent country for himself and he arranged to visit it. Accompanied by a party of six which included Captain Montagu, the Attorney-General, and George Frankland, the Surveyor-General, he left Westbury on the 14th of January, 1829. For three days they rode along a rough bush track, euphemistically styled the inland road, before entering the Surrey Hills. They saw very little good land. The elevation and the cold harsh weather they experienced showed conclusively that this district was not suitable for the production of fine wool. They met with some extensive open country but found it covered with "species of long wiry grass unfit for pasture." Such spaces as these occupy thousands of acres of the Surrey Hills and are quite worthless. The long wiry grass is the misnamed button grass, [73] a kind of rush. This journey showed Arthur the difficulties the Company faced and convinced him of the sincerity of Curr's protests.

The latter had received no intimation that Arthur intended to visit the Hills. He happened to arrive at Emu Bay on a visit of inspection and was surprised to hear that the Governor had left the night before, intending to ride along the coast to Port Sorell. By good fortune the *Fanny* was at Emu Bay. He at once embarked and, the wind being fair, reached the Mersey in a few hours. Here he found the Governor and his party waiting for slack water to cross. Then began a conference which lasted five hours.

To Arthur's inquiries whether the land he had seen on the journey through the Hills was a fair sample of the remainder, Curr replied that it was, and further stated that the Surrey Hills were neither first rate nor second rate sheep pastures. In proof of this he said he had been afraid to run there the merino sheep lately imported from Europe and had been obliged to hire a farm to maintain them. Arthur asked why he had not taken Cape Grim where even he admitted there was a fair country capable of feeding some thousands of sheep. "If there really had been an inadequate extent of sheep country there", he added "upon a proper representation the Company would have been permitted to take the balance elsewhere."

In reply Curr said that had he accepted Cape Grim at first he doubted whether permission would

have been given to divide the grant, especially in view of the report recently submitted by the Government Surveyor(54). Although he had not been privileged to see it, he understood it stated that, within reasonable limits, a grant of average quality could actually be found there. Such a report would certainly have fixed them irrevocably at Cape Grim.

The Governor did not reply to this observation but asked if Curr now wished to have Cape Grim. The latter replied that he did, provided he need only take the grassland which comprised about 50,000 acres. He wanted neither heath nor forest. He also protested "against the Company being sacrificed to the whims of the surveyor, or of any man who chose to speculate upon their clearing forests, or improving barren heaths which were undertakings foreign to their purpose." The 10,000 acres, which were to be taken somewhere on the road leading to the settled district, he asked to be granted at the Middlesex Plains, a fine stretch of open country lying some 10 miles to the east of the Surrey Hills. Arthur's journey had brought to him a full realization of the difficulties that beset the Company and he saw ruin staring it in the face unless some variation were made in the conditions. His objections to the locations had been met when they were fixed west of Round Hill, for they would not now inconveniently approach the settled districts. He readily agreed to the proposals, but refused to pledge himself to anything conclusive until he had referred to all the papers connected with the subject. This he promised to do immediately on his return to Hobart. As the agreement with the Colonial Office permitted the main grant to be broken into only two parts and as one would now be taken at Cape Grim and the other at the Surrey Hills, he said that it would be necessary to make arrangements with respect to the Hampshire Hills where the Company had already begun to erect buildings. He therefore unhesitatingly stated that he would allow them to take 10,000 acres there, this being the estimated amount of good land at that place(54).

A perusal of all the documents relating to the Company's land location convinced Arthur that there were no obstacles in the way of the proposals tentatively made on the banks of the Mersey and he at once confirmed them. The Company was to continue in occupation of 20,000 acres of land at Circular Head; to retain possession of a block containing 10,000 acres at Hampshire Hills; to substitute 10,000 acres at the Middlesex Plains and the hills surrounding them for the block allowed at the lakes; and to take the remaining 210,000 acres in two blocks of such dimensions as was desired at Cape Grim and the Surrey Hills. A proviso was added that such blocks were to be taken in as compact a shape as possible with reference to natural boundaries(55). A copy of these proposals he transmitted to Sir George Murray, stressing the necessity of the change if the Company were to survive(56).

Soon after the Governor's return, there appeared in the Hobart Town Courier (57) an account of the journey from the pen of the Surveyor-General. In it the inferior quality of the Surrey Hills as a sheep pasture was stressed. Curr did not think quite so poorly of the district and had hopes that the grass would improve. Moreover Goldie, the Company's agriculturist, had eight months earlier reported favourably. "I may now state from the country I have lately seen", he wrote, "I am quite prepared to receive any stock you may think of sending me." Within two months of Arthur's visit, however, he sent in a second report which contradicted his former statement and completely verified Surveyor-General Frankland's judgment(58).

Having received Arthur's sanction to take land at Cape Grim, Curr lost no time. Profiting by past experience he determined upon a personal inspection. On the 14th of February, accompanied by Richard Frederick, an expert boatman, he left Circular Head in a whaleboat. He landed near Maandai Point and traversed the country as far as Mt. Cameron West, making as careful and minute observation of the capabilities of the country for running sheep as the time at his disposal would admit. From the top of the mountain he gazed over a wide expanse of poor country, "absolutely worthless and the greater part of it of no more use for the purpose of settlers than so much sky or water"(59). He found some excellent grassland admirably adapted for sheep but its extent was strictly limited consisting, as it did, of an area in the vicinity of Cape Grim and a narrow strip fringing the west coast and extending south beyond Mt. Cameron West as far as the eye could reach. The weather being calm and the sea smooth he examined Trefoil Island and was delighted with its capabilities. In general, however, he thought less favourably of the Cape Grim district than anyone else who had seen it.

Soon after his return he received Goldie's gloomy report on the Surrey Hills and for the moment even his indomitable will bent before the blow. For the first and last time he hints at defeat; "I have thought it possible that the court, disheartened by the partial disappointment of their hopes, might be disposed to withdraw from the occupation of their lands at least for the present"(60).

But failure was not to be thought of and he threw himself into his task with greater vigour than ever. Cape Grim must be occupied before the end of the winter. The excellent pasture land he himself had seen and the mildness of the climate convinced him that here was a district of utmost service to the Company, provided that he could secure all the good land without acquiring too great an area of worthless scrub and heath. Once in occupation he hoped to attain this end.

Hellyer was at once dispatched to Cape Grim to make an accurate survey of the district. In particular, he was to note all the good and useful land and determine the most favourable boundaries. While there, he visited the neighbouring islands and reported very favourably on Robbins and Hunter Islands. That he should report so favourably of Hunter Island once more demonstrated his ignorance of what constituted good land.

Upon receipt of the report, Curr took Renwick, the shepherd, with him and examined Robbins Island. From here they proceeded to Cape Grim where they made a further examination of the

land and Curr inspected the anchorage. On his return he conferred with Goldie and Hellyer. As a result of their deliberations it was decided to secure as much land as possible in the neighbourhood of Circular Head and Cape Grim[91].

Accordingly, when Hellyer had completed his map of the Cape Grim district, Curr sought to obtain a grant there which would comprise all the land suitable for pasture. He pointed out that it was impossible for the Government to do justice to the Company unless there was a variation in the condition that the grant had to be as nearly as possible in the form of a square. The Company, he reiterated, had been incorporated principally with a view to producing fine wool for the British market but the Surrey Hills, the only extensive tract of pasture land available to it for selection was, as Arthur knew from personal observation, not at all adapted for the feeding of fine woolled sheep. The land bordering on the west coast, however, was in many parts quite suitable, and he applied to have the existing conditions varied to enable him to take a strip of land 40 miles long by three or four miles wide, together with some of the islands in Bass Strait. Such a grant would extend as far south as Sandy Cape and would have as its eastern boundary the Welcome River and a line extending southwards therefrom. "No injury would be done to the prospects of future settlers by granting such a tract to the Company", he wrote, "because the quantity of that extent of coast does not in fact shut settlers out from one acre of land which is of any value. Its utter worthlessness will render it forever unavailable . . . Were the heathy plains, of which the greatest part of it consists, within 10 miles of the City of London they would not sell for 40 shillings an acre"[92].

On the same day, he wrote to the directors urging them to make every exertion to obtain the land at Cape Grim without any reference to compactness of figure. He stressed the importance of obtaining the grass land which he estimated of sufficient extent and quality to feed 50,000 merino sheep. What was not grass land was absolutely worthless, "and it was really of no importance to either party whether half a million acres of it were granted to the Company or retained by Government[93].

Asked to report on the application, the Surveyor-General expressed himself as strongly opposed to such a variation of the conditions as would enable the Company to hold a narrow belt of country along 40 miles of coast. His opposition was based on the grounds that "such an arrangement would effectively prevent the future introduction of free settlers in that quarter, for, as all the back land of the coast appears valueless, it is the belt of grassy country alone which would admit of private locations in it, and it, therefore, becomes a question of policy whether it be expedient to sacrifice the present immediate interests of the Company to the future wants of emigrants, or, on the contrary, to abandon all intention of hereafter locating private settlers in that quarter and to surrender to the Company all the lands which are available for sheep grazing without previous outlay[94]. Nor did he think it politic to grant the islands in perpetuity.

Arthur viewed the application sympathetically. Without waiting for Frankland's report he immediately sent a copy of Curr's letter to Downing Street with the comment that "as I find that preparing the way for some concession will be considered a great favour, I cannot hesitate to forward Mr. Curr's letter and to express the hope that the directors in England may have the assurance that His Majesty's Government will be disposed to grant the Company every reasonable relief to overcome the difficulties which were not foreseen"[95].

He kept back the Surveyor-General's report for two months and, when he did send it on, said nothing to support the opposition. His conduct on this occasion was in marked contrast with that shown earlier. Having forced the Company west of Round Hill he offered no further opposition and, as his actions on this occasion show, was quite sympathetic.

Curr's plan was again thwarted, though in a quarter that he least expected. Realising the importance of time the directors, upon receipt of their agent's dispatch urging them to get all the grassland in the neighbourhood of Cape Grim, again hastened to the Colonial Office. A long conference followed[96]. Sir George Murray realised that some further concessions must be made if the Company were to survive and readily agreed to permit a selection at Cape Grim. But he would not permit them to acquire the long narrow strip they asked for; any grant there must approximate to a square figure. On this point he was adamant, for he considered that such a grant as Curr desired would shut out settlers from some of the best part of the island. He had, of course, no knowledge whatever of the country and based his conception on Wedge's report. His argument received no other confirmation from Tasmania.

The Company was permitted to divide its grant into six locations, instead of four as determined by Huskisson, and the allowance of unproductive land was raised from 62,500 to 100,000 acres. Of the 350,000 acres now granted, the bulk was to be at the Surrey Hills and Cape Grim, 150,000 acres at each place; 20,000 acres were to be taken at Circular Head; and areas of 10,000 acres each at the Hampshire Hills, Middlesex Plains, and the islands adjacent to Cape Grim. Murray informed the directors that they could expect no further concessions and left Arthur in no doubt of the position: "I have already informed the Van Diemen's Land Company that I shall not feel myself warranted, under any circumstances whatever, in departing from the terms which have now been agreed upon between the Company and His Majesty's Government, and it only remains for me to desire that they may be considered final by you—suffering no arguments on the part of the agents of the Company to induce you to defer the completion of their grant, the limits and bounds of which you will direct the Surveyor-General to fix as expeditiously as can be accomplished with convenience, according to the arrangement communicated to you in this despatch"[97].

The directors expressed their entire satisfaction with the arrangements and were confident that they would now be enabled "to push forward the objects for which the Company was formed, with

the prospect of remuneration to those who have embarked property in the undertaking, and with the hope and expectation of extending benefits to those who may settle in the immediate neighbourhood of the Company's lands, as well as generally to the Colony itself "[98].

Curr heard of the arrangements with mingled feelings. With Arthur decidedly friendly he had hoped that the directors would be able to overcome any opposition in London and already in his mind's eye pictured the Company prosperous and affluent. Now all these pleasant images were rudely shattered and he saw the Company burdened with at least 125,000 acres of land at Cape Grim "of equal quality with the deserts of Africa." In exceeding bitterness of spirit he wrote, "But I am forbidden to request any deviation from the final decision, I should at once apply to the Government to resume 100,000 acres in order to save the expense of defining the boundary . . . Could I have known that the whole of the useful country in that district would not have been granted I should have hesitated to incur the expense of the additional establishment, as that expense must bear a very large proportion to the income which it is possible to derive from it "[99].

Disappointed in his hopes Curr again reverted to the idea of a grant on the mainland of Australia. He first made the suggestion in 1826 but the directors received it coldly. He now found them reviewing it as a possiblity. Their interest had recently been aroused by the glowing reports of Captain James Stirling and the botanist, Fraser, who had examined the Swan River district in March, 1827, and in particular by the enthusiastic letters written by Stirling to influential persons in England. As a result, within a few days of hearing of "the definitive and final" arrangement of the grant, Curr heard from the directors that they were considering the advisability of acquiring land at the Swan River or in some other part of Australia, although they were not prepared to take any immediate steps. Without hestitation he advised them to give earnest consideration to extending their activities at once, since he was of the opinion that, while the Van Diemen's Land undertaking would eventually be moderately profitable, his hopes could go no further. He was as convinced as ever of the soundness of the project but the lands they had acquired were not sufficiently good to ensure the prosperity they once hoped for. If they determined to acquire land in Australia there was no time to lose, as delay would allow others to secure the most valuable locations. In two years time their stock in Van Diemen's Land would, by natural increase, have become so numerous that they could undertake the settlement of an extensive grant in Western Australia. Moreover, the Company's establishments at Circular Head and Cape Grim were most advantageously situated for shipping stock to that district. The chief objection to the project was that unfavourable accounts of the land were being circulated, though some spoke of excellent land beyond the Darling Range and inland from King George's Sound. Any plan must be pushed forward with extreme eaution but if, on further investigation, the rumours condemning the district were found to be incorrect, he advised his directors to apply for 2,000,000 acres before the value of the land appreciated in England[100].

Curr made every attempt to get accurate information of the Swan River district and within a few months advised that he had learnt from a practical farmer who had just returned from there that, "as an agricultural colony, Swan River was a complete failure." There was, however, good country around King George's Sound and on the mainland opposite Kangaroo Island [101].

From the moment that the Surrey and the Hampshire Hills were occupied, Curr had considered a location at Emu Bay as a necessity. Without a wharf and storehouse there, "The Hills" would be isolated from Circular Head and the management of the estate would be extremely difficult. It must always be remembered that the only means of transferring stock from Circular Head to "The Hills," or vice versa, was to boat them to or from Emu Bay.

When he discussed the Company's position with Arthur at the Mersey in January, 1829, he had understood that this concession would be granted but the letter confirming the arrangements tentatively entered into was silent on the matter. He at once informed the Colonial Secretary of the omission but it had not been rectified. He now saw with grave concern that Murray's final arrangement was equally silent about land at Emu Bay.

He refused to accept the decision as final and resolved to get better conditions. Having occasion to visit Hobart on business he determined to seek an interview with Arthur, hoping by this means to gain what he sought. Arthur was absent from Hobart, being engaged on a tour of inspcetion of the midlands. Curr, however, was not to be denied and, learning of his whereabouts, set out and met him at Jericho. Arthur was non-committal and asked Curr to submit his request in writing for it would be necessary to obtain an opinion from the Surveyor-General. He was playing safe.

In the subsequent letter Curr requested that the small "Plains" on the road from Emu Bay to the Hampshire Hills be granted the Company, or exchanged for ten times the quantity of land at Cape Grim and that from 1000 to 1500 acres of land be granted at Emu Bay with facilities for wharf accommodation. At the same time he suggested boundaries for the grants at Surrey Hills and Cape Grim. For the latter he proposed such boundaries that it could be made to join on to the Circular Head block, paying no respect to compactness of figure [102].

The Surveyor-General was of the opinion that it was not reasonable for the Company to expect to receive such small lots of picked land at such wide intervals as were the isolated plains in the forest between Hampshire Hills and the coast. He was also opposed to a grant at Emu Bay. "The Company should be placed precisely on the same footing as individuals receiving such allotments from the Crown as they require for building and on the same tenure; and, with respect to wharves, the Company should be subject to the regulations which the Government might enact on that head."

He also pointed out that the boundaries of the Surrey Hills, as proposed, would enclose an area

400 acres in excess of the approved grant and that the suggested boundaries at Cape Grim deviated considerably from those proposed by the Secretary of State [103].

Curr's requests, together with the Surveyor-General's report, were then placed before the Executive Council. This body advised the Governor not to deviate in the slightest degree from the instructions of the Secretary of State respecting the size and position of the several blocks of land granted to the Company. The plains lying between the Hampshire Hills and the coast should be disposed of under the Ripon regulations of 1831, whereby land could be obtained only by auction at an upset price of 5s. per acre. "The isolated plains should be sold in due course under the new regulations whenever it can be perceived by the Government that there will be sufficient competition for them by settlers so as to enable the Government to realise the value of these several pieces of land" [104].

Curr again sought an interview with the Governor and learnt that he would consent to any boundaries which conformed to Murray's instructions but not to any that conflicted with them. Accordingly, he submitted new proposals for boundaries which, on being referred to the Surveyor-General, met with unreserved approval. He still desired land at Emu Bay and on the road to "The Hills" and sought permission to relinquish 50,000 acres at Cape Grim, taking in exchange the same quantity between the Emu and the Cam rivers extending southward to the Hampshire Hills block [105].

The Surveyor-General viewed this modification of Murray's "definite and final" instructions quite favourably, although he stressed, as did Wedge before him in the report of 1828, the importance of a township reserve at Emu Bay:

"It will, I think, be considered that this proposition very much coincides with the first views of His Majesty's Government and of the colony at large, as it concentrates their grant, nearly two-thirds of which would thus be brought into one almost continuous tract. And I may add, from the nature of the ground, it is exceedingly improbable that any private individuals could for many years undertake the clearance of such forests, while the enterprise would be much more within the range of the Company and quite consistent with its principles. Should Mr. Curr's proposal be conceded, the river boundaries which he suggested would be preferable to the ideal straight lines and, on the course of those rivers being surveyed, the difference in area could be adjusted with the Woolnorth block. I observe that Mr. Curr in his letter loses sight of the reserve for a township at Emu Bay. But I do not think it would be desirable to relinquish that reservation which should, like others, consist of four square miles" [106].

His hurried trip through the district had revealed to him the "very great richness of soil" but, as this extract shows, he was also alive to the tremendous difficulties which would face the settler in developing the area, characterised as it was "by the most stupendous and tangled forests in Van Diemen's Land."

When the question was referred to the Executive Council a difference of opinion arose. While the majority opposed the exchange, the Chief Justice saw no objection to it, provided land was reserved for a township at Emu Bay and the Company was placed on the same footing as other settlers in the acquisition of town allotments [107].

Foiled in his attempt to secure the exchange from the local government, Curr urged his directors to strain every nerve to win the consent of the Colonial Office and to take no denials, for it was "an object of the last importance to the Company and must be carried at any cost."

His object was not to acquire a rich but densely forested area for future development. He feared that if, as was confidently hoped, tenants were established at "The Hills," speculators would erect public houses and stores in the neighbourhood and "draw the very blood from their veins. The Company might supply tenants with goods, but the crops would go to the private store and the public house." To develop "The Hills" it was essential that a road be constructed and, unless the exchange he requested was obtained, the Company would have to construct an expensive road through Crown lands and would not obtain the full benefit from their outlay. The land through which they built a road should belong to the Company [108].

The directors at once referred the question to the Colonial Office and asked that, in view of the importance of the result upon their activities, an early decision be given. They were fortunate in that Goderich was now at the Colonial Office. He proved much more compliant than Murray and, without reference to Arthur, granted the exchange.

The boundaries of the new tracts of land were to be defined by the local authorities and the Company was to construct at its own expense such a road from Emu Bay to the Hampshire Hills as the local government deemed suitable [109]. No area was set aside as a township reserve.

Arthur was rightly incensed at being thus summarily disregarded and revealed his feelings in a dispatch to his superior that bristles with indignation:

"This proposition received the most deliberate consideration in the Executive Council, and I directed that Mr. Curr should be informed that the local government could not sanction any alteration, neither could it hold out the hope that the request of the Company would be recommended to His Majesty's Government. Under these circumstances I have the honour to recommend that the local government be authorised to issue a grant on the principles expressed in Mr. Hay's letter to Mr. Bischoff of 21st May, 1830 [110].

Mr. Curr's proposal, besides that it is a departure from the stipulations of 1830, would, if entertained, be adverse to the interests of government—the land at Woolnorth (the name given by the Company to the Cape Grim estate) is of inferior quality and is far remote from the settled districts, while that at Emu Bay has facilities calculated to render it at some not very distant period a thriving settlement. Considering therefore the highly advantageous terms on which land has been located to the Com-

pany in comparison with private individuals. I should not think it equitable to entertain Mr. Curr's request, even were not the door closed to all further negotiation by the instructions conveyed to me after the last concession was made to the Company " [111].

At the end of April, 1833, Curr left Tasmania on a visit to England and, on the representation of Dr. Hutchinson, who acted as chief agent in his absence, the final settlement of the boundaries of the land between Emu Bay and the Hampshire Hills was postponed until his return [112].

While in England, Curr suggested that efforts be made to exchange 70,000 acres of land on the eastern side of Woolnorth, without diminishing its length, for 56,000 acres in the north-eastern part of the island, not approaching within 20 miles of Launceston.

Accordingly, deputation after deputation waited upon Spring-Rice, who was now at the Colonial Office, and asked for this exchange. In pursuance of their application the directors pointed out the disabilities under which the Company was labouring. Owing to the rigour of the climate at the Surrey Hills, the 10,000 sheep they had purchased were reduced to few more than 1000. If confined to that district the object for which the Company was established must be abandoned. The Surrey Hills were found to be available for rearing cattle but not for fattening them. To make cattle marketable it was necessary to have an area of land adjacent to the settled districts where they could not only be kept for sale but also got into a condition for slaughter. Land in the north-east would also enable them to proceed with the breeding of sheep, the object for which the Company was established.

All the arguments about the original intention of the grant were traversed again and comparisons were made with their position and that of the Australian Agricultural Company. The mainland company, it was stated, had received an additional concession of 300,000 acres; both companies had been promised remission of quit rent as a boon for the employment of convict labour, but this concession had been withdrawn from the Van Diemen's Land Company; and the Australian Agricultural Company was not restricted in its choice of lands. "The result is," they wrote, "the Australian Company is prosperous. The same power that conferred the prosperity can confer it on the Van Diemen's Land Company, and by the same means, the exchange of lands " [113].

For nine months the discussion dragged on but all arguments were unavailing. Spring-Rice refused to sanction the proposal. He bluntly said that they were fortunate in obtaining permission to exchange portion of Woolnorth for the land at Emu Bay before the arrival of Arthur's dispatch containing the opinion of the Executive Council; that no more concessions with respect to land should be made to the Company; and asking for a rescission of the agreement. However, the government had pledged itself and the exchange would stand [114].

Within a few months of this decision, Spring-Rice was out of office and the directors renewed their request to his successor, Lord Aberdeen, who proved less inexorable. Although he refused to make the exchange he promised to send the application to Colonel Arthur with directions to bring it before his Executive Council. If it was proved that the Company had not received the extent of suitable land they had been led in the first instance to expect; that it was solely owing to the nature of the land that the flocks of the Company had decreased; and the council considered such a transfer would not be detrimental to the interests of the colony and of private settlers; he would authorize the Lieutenant-Governor to make the exchange [115].

Aberdeen was almost immediately succeeded by Grant, afterwards Lord Glenelg, and in the changeover the matter was forgotten. Accordingly the directors were compelled once more to renew their application. Glenelg was so far favourable to their request that he instructed Arthur to bring the application before his Executive Council and, in a covering letter, wrote that "as the establishment appears to have been countenanced by His Majesty's Government with a view in a great measure to the benefit of the colony . . . it is desirable to afford the Company every reasonable facility to retrieve their affairs " [116].

The directors on their part were to give such powers to Curr as would enable him, if necessary, to conclude an arrangement which was to be considered final and decisive [117]. In addition, they asked that two small islands known as Harbour Island and Stack Island, having areas of 10 and 50 acres respectively, be granted to them. Insignificant in area though these islands are, it was feared that their nearness to Woolnorth would lead to their being held by settlers for the purpose of opening stores or building public houses. As there would be many indentured servants and convict labourers at Woolnorth, it was felt that such neighbours were highly undesirable. Glenelg refused to hand over the islands on the same terms as the original grant but, provided they were not wanted for Government purposes, was willing to sell them on the same conditions as those offered to ordinary settlers.

The latter part of the year 1835 found the whole of Tasmania agog with excitement. In June, John Batman had returned from Port Phillip with glowing accounts of the finest country he had ever seen, consisting of rolling downs extending as far as the eye could reach, thickly covered with grass of the finest description. Besides, he brought back with him the deeds of 600,000 acres purchased from the natives.

In this new district Curr saw a wonderful opportunity for the Company. Here was a vast extent of the very kind of country they had vainly searched for in Van Diemen's Land for more than ten years and which far excelled anything he could hope to find in the north-east district.

His letter urging the directors to obtain a grant at Port Phillip throws an interesting light upon the early settlement of Victoria. "It is understood to be settled between Colonel Arthur and General Bourke, Governor of New South Wales, that the former shall take on himself the provisional government of these squatters pending the decision of the British Government as to whether a distinct colony shall be founded here, or whether it shall be subjected to the government of one of the present older

colonies, for the land is so superior to most other known parts of the colonies that emigrants will not be restrained from settling there, and indeed it would be unwise to attempt to prevent them. There is no doubt that Colonel Arthur is anxious to have the new colony attached to the Government of Van Diemen's Land. It is certainly more accessible from this island than from New South Wales and the whole emigration which has gone there is from Van Diemen's Land, and whilst the settlers are now at a loss to find available land in Van Diemen's Land, the old territory of New South Wales is as yet but half occupied "[117].

The Company, he stressed, was most advantageously situated for stocking a location in this district which was so admirably adapted for sheep farming, the Company's real object. Compared with Port Phillip, the north-eastern district of Van Diemen's Land was quite unattractive.

"It is quite certain that adjoining Port Phillip, which is a fine and spacious harbour, there is an uninterrupted extent of at least several millions of acres of as fine sheep land as any in these colonies. Port Phillip is about a day's sail from Circular Head: the facility of communication is greater than with Launceston and very much greater than with the North-East quarter of the Island, and respecting the latter country I must add that what remains unlocated cannot altogether be pronounced good, though good farms may still be selected from the mass of inferior unlocated land which is only just capable of feeding sheep" [118].

He would not have his directors satisfied with a niggardly 56,000 acres, the area they were asking for as an exchange in Van Diemen's Land, but suggested at least a quarter of a million acres. In asking for a grant at Port Phillip he thought they would not meet with the opposition of Governor Arthur who was so hostile to the suggested exchange of part of Woolnorth.

If Port Phillip were not added to the territory of Van Diemen's Land, he continued, it would be impossible for them to possess land without a new charter: but so great were the advantages offered that they should spare no expense in obtaining one. To secure land at Port Phillip was of such importance to them that they should obtain all the good land they could on almost any terms which the Government would demand.

To show how highly he thought of the project and how sincere he was in making the proposal, he informed them that, as soon as the land at Port Phillip was open for sale to the public, he would sell all his property in Van Diemen's Land and invest the proceeds and whatever other funds he could raise in land on the other side of the Straits. "If the court shall have unfortunately rejected the advice I have so strongly given them to obtain land at Port Phillip," he wrote, "it will become a matter of regret to them in a few years" [119].

Early in 1835, at the first opportunity after his arrival from England, Curr broached the matter of land exchange to Arthur, who had no inkling that such action was even contemplated. The opposition shown to the project and the Company's activities generally aroused Curr to anger and, towards the end of March, he journeyed to Hobart to interview the Governor. At this interview his indignation boiled over and he spoke his mind in plain unvarnished terms. He said that the Governor continually made professions of goodwill to the Company but never anything but professions; that matters of vital importance he opposed in the most determined manner; that if he were sincere in his utterances he could really serve by promoting the exchange of lands, by paying the salary of the police magistrate from Government funds, by making roads, by placing a Government messenger at Circular Head, and by assigning convict mechanics; but that he had no hopes whatever that any of these things would be done. He also accused Arthur of inspiring a malicious statement, the production of of three Government officials, which had appeared in the Hobart Town Courier. Upon Arthur's denial he said that no Government official would write such an article if he did not think that it would be at least agreeable to the Governor. Having insulted the Governor in this way, he returned by coach to Launceston in high dudgeon.

Time failed to soften his feelings and six months later his intense dislike of Arthur again blazed forth in a dispatch to the directors. "He possesses a most unrelenting disposition to oppress all who do not submit themselves to his arbitrary temper, which to people at a distance does not appear arbitrary because so perfectly cool, unimpassioned and collected" [121].

Such behaviour towards one from whom he sought a benefit was, to say the least, highly impolitic and so the directors thought. But it is extremely doubtful whether he would have obtained the exchange had he kept silent. Arthur was always hostile to the Company's estate being near the settled districts and was fixed in his determination to prevent the exchange if it lay within his power. The Executive Council either supported their chief, or viewed the Company (as did the majority of the colonists) as a menace to the interests of the private settler.

In pursuance of his request for an exchange, Curr sent to the local government full details of the negotiations with the Colonial Office, but Arthur made no attempt to bring the matter before the Executive Council until instructed to do so by Glenelg.

In consequence it was not until December, 1835, that consideration was given to it. A long and exhaustive inquiry followed. All the correspondence relative to the location of land from the earliest negotiations with Bathurst, a number of Curr's dispatches to the directors, the reports of the Company's surveyors and of Surveyor Wedge, the Company's annual reports and the proposals for emigrants issued by the Company, were carefully examined and discussed.

Alexander Goldie, who had for some years been the Company's agriculturist, was called in evidence. He had resigned his position a few years earlier after serious but just censure by Curr. His enmity towards Curr was a bye-word in the Colony. As was to be expected, he attributed the cause of the Company's failure solely to the policy adopted by Curr. "I think I could rear sheep at the Surrey Hills to advantage with a little artificial food and shelter," he commented. But Curr had refused to

incur the expense although he was told that artificial food paid in Germany and should pay in Van Diemen's Land, especially as the fern lands with which some parts of the grant abounded could return large crops of oats and turnips of excellent quality, available for the support of stock of every description. Curr's criticism of this pronouncement was scathing but sound: "He might just as well have said under present circumstances, whatever the future might produce, that sheep could be reared if the Surrey Hills were wheeled down to the coast, for the same method of adapting them was nearly as practicable as the other" [122].

The Executive Council affirmed that there was no doubt that the Company was confined to the extreme north-west of the island by the terms of its charter and, as evidence that the directors had received all that they could reasonably expect [123], quoted from one of Curr's own statements, wherein he said "If the Company's grant is much inferior to what I would have wished, there is some consolation in the reflection that it comprises very nearly all the useful land in the north-west quarter to which we were restricted for selection: we have done nearly the best which physical circumstances permitted" [124]. Such reasoning was merely specious.

A report was also obtained from the Surveyor-General. He was opposed to the exchange and declared that if the Company was allowed to take a large location in the north-east quarter of the island it would be an obvious interference with the interests of the community. Intending settlers found the greatest difficulty in selecting land for their purposes, and it was to the north-east quarter that they generally turned their attention as it afforded here and there tracts of land suitable for pasturing sheep.

As to the fear entertained by Lord Glenelg that the interests of the colony might be jeopardised if the Company failed, the Council definitely affirmed that it was "not aware that the colonists are collectively or individually likely to be affected by the success or failure of the Van Diemen's Land Company" [125].

The Council's main objection, as Arthur himself declared on a later occasion, was based on the startling discrepancy that existed between the statements made to the Secretary for the Colonies about the worthlessness of much of their grant, and the glowing accounts of the same land issued in the printed proposals to emigrants published in 1833. In these proposals the Surrey Hills were proclaimed as resembling in climate and soil the counties of northern England and of southern Scotland. The soil was said to be of excellent quality, cattle did well on the native pastures, and oats were the staple produce: that they were of the best quality of any in Van Diemen's Land and when wheat was worth 5s .per bushel, oats were generally worth 6s. Of Woolnorth, the greater part of which the directors asked to exchange on account of its being absolute desert, the proposals were highly eulogistic: "The climate of Woolnorth is well adapted for the growth of wheat and barley. Snow never falls there. Summer frosts are nearly or quite unknown: in the latter particular, it enjoys great advantage over the old settlements. A sufficiency of rain falls without a superabundance. Every species of livestock can be reared to advantage in this district. The proximity of Woolnorth to a good harbour will enable produce of every kind to be conveyed to a market speedily, and at no very great expense. There is probably no place in Van Diemen's Land better" [126].

From such statements as these they inferred "that the nature of the Company's estates was by no means such as to account for the want of success which had attended its efforts" [127].

The annual report of 1832 was equally misleading. Both publications were the work of the managing director, James Bischoff, who deliberately misrepresented the circumstances of the Company.

Immediately on receipt of this annual report, Curr severely criticised it on the ground of exaggeration [128] and told the directors that such statements were detrimental to their interests. On his arrival in England he saw, and at once condemned, the "printed proposals" as incorrect. The directors endeavoured to suppress its circulation, but, unfortunately, a few copies had been sent to Van Diemen's Land.

From the manner in which the Executive Council dealt with these conflicting statements it is clear that the members were strongly prejudiced against the Company, and saw in the inconsistencies an opportunity of preventing the transfer. None of them sought an explanation which could have been obtained with the greatest ease. Curr was summoned to appear before them. He was asked to state any additional arguments he wished to bring forward, but no reference whatever was made to the contradictory statements upon which, they declared to Glenelg, the basis of their objection was laid.

Arthur at once informed the latter of the adverse decision of the Executive Council and his complete agreement with it [129]. Upon receipt of this dispatch, Glenelg had no alternative but to notify the directors that he was unable to permit the proposed exchange. He sent them extracts from the minutes of the council showing the grounds on which the proposal was rejected.

The directors read with something like consternation the reason given for the refusal. They realised the unpleasant and delicate situation in which they were now placed and hastened to explain the discrepancies between the statements they had made in asking for an exchange and those contained in the pamphlet for encouraging tenants. They showed that when they discovered the pamphlet was incorrect in part they suppressed it and dispensed with the services of the managing director who was entirely responsible for the erroneous and misleading statements. In view of this explanation they asked that the exchange be reconsidered: if this were not possible that they be given land on the southern coast of New Holland between 141° and 147° East Longitude [130].

Eighteen months earlier Curr had urged this and had asked Arthur to support a grant at Port Phillip if he saw a difficulty in the way of an exchange in Van Diemen's Land. Arthur sent the request to Glenelg with the following comment:

"Whilst I concur with the Council in the opinion that the Government has redeemed every promise

made to the directors, it is nevertheless undeniable that the estate of the Company is, as a pasture for sheep, inferior to the settled districts and would require, to render it productive, a larger expenditure of capital than appears to have been anticipated."[111]. Then, in the next sentence, he points out that such a concession to an incorporated body would be regarded with jealous suspicion by the settlers who had not received such favourable treatment.

So non-committal a policy Curr had often experienced before, and as early as 1827 he made this estimate of Arthur's character: "He will never be disposed to render any assistance which will involve him in an atom of responsibility. He merely strives to be correct, and he torments himself in the search of a safe course"[112].

In reply to the request, Glenelg told the directors that Colonel Arthur was on his way home, and further discussion must be postponed until his arrival. When Arthur reached England he was suffering from a severe illness and the suggested conference was delayed. The first business on his recovery was to conciliate him. This the directors did by apologising for any real or apparent discourtesy he had received from Curr's official communications and by withdrawing all the claims that they had for some years past been bringing against the Government of Van Diemen's Land for certain payments in connection with pilotage fees and the police magistrate at Circular Head.

At the interview they again asked for 56,000 acres of land in the north-east of Van Diemen's Land in exchange for 70,000 acres at Woolnorth. Arthur said that this could not be allowed as it would excite serious jealousy in the colony; a statement which Glenelg confirmed. Then they made a request for land at Port Phillip, to which Arthur replied that the charter restricted them to Van Diemen's Land and its dependencies. At once they affirmed they would go to the expense of a new charter if 90,000 acres of eligible land at Port Phillip were substituted for the land to be surrendered at Woolnorth. They argued that land in Van Diemen's Land, if fit for pasturage, was worth double the quantity of the same description at Port Phillip. Glenelg would not allow any further concessions in Van Diemen's Land, but promised to consider their application for a grant at Port Phillip and to let them know his decision in a few days[113].

Nearly two months elapsed before he informed the directors that he could not grant their request. Not only did the terms of their charter offer almost insuperable difficulties, but there were grave objections to any company or individual acquiring land in New South Wales except by purchase at a public auction at a fixed upset price[114]. It would have been surprising had he decided otherwise. Even the directors must have realised they were supporting a lost cause. The day of land grants passed away with the Ripon regulations of 1831. Men looked on colonies far differently from what they had done in 1825. The theories of Wakefield found many able supporters both in and out of parliament. The basis of his theory was that land must always be sold at a sufficient price, and this had long before 1837 become a fixed principle. The day of the systematic colonizer had dawned.

Nothing daunted, however, they now asked for a deputation to discuss the making of a grant in the north-east or any other part of Van Diemen's Land in place of the shortage of 98,040 acres of land suitable for pasturage or tillage that existed in their grant[115]. Once more Glenelg listened to their arguments. In reply, he told them he was surprised to hear of this request again, for he thought that when they expressed their willingness to take land at Port Phillip they had abandoned all idea of further concession in Van Diemen's Land. He would, however, again reconsider their claim. And such was his attitude and general bearing to the deputation that the members departed with the impression that here was a good prospect of their request being granted[116]. But these hopes were soon to be destroyed, for Glenelg informed them that he could not sanction any further exchange of the Company's lands, and that they must accept this as the final decision[117].

Even after this rebuff they did not abandon their attempts. They replied to the effect that they considered this decision applied only to land in the north-east, and now requested a strip of land extending along the west coast as far as Sandy Cape[118]. In other words they returned to the request made by Curr when he first applied for Woolnorth. If this was not agreeable to the Government they had no further request to make and asked that their lands be surveyed as expeditiously as possible. If, as a result of the survey, it was found that they had not received "250,000 acres of useful land, that is, land capable of being used in pasturage or tillage," they trusted that the Government would, in strict conformity with the letter and spirit of the original agreement and the charter, make good the deficiency. They reminded Glenelg that the Australian Agricultural Company could attribute their prosperity mainly to the fact that they had recently exchanged a very large tract of unproductive land for locations in every way suitable for depasturing sheep.

Glenelg again refused any concession, saying that the conditions of the grant accepted in May, 1830, and modified in favour of the Company in March, 1833, were quite conclusive and the Lieutenant-Governor would be instructed to carry out the survey in accordance with those conditions[119].

To this the directors replied that if, on the conclusion of the survey it was found that they had not received the full amount of useful land they would look to the Government for fair treatment.

Twelve months later they had occasion to interview Lord Normanby, Glenelg's successor at the Colonial Office. Again they declared they were not in possession of the quantity of land capable of being used in pasturage or tillage originally guaranteed to them, and asked for additional land or an exchange of lands[120]. Normanby replied that, as his predecessor (with a full knowledge of all the material facts and circumstances) had decided against this, he would not re-open the question[121].

Before the local government began the survey, Curr asked to exchange all the islands they had acquired except Trefoil for an equivalent area on the mainland. Gibson, who succeeded him as Chief Agent in 1841, reaffirmed the request but,

after mature consideration, Sir John Franklin decided not to interfere with the arrangements by which these island formed part of the Company's estate [142].

In January, 1842, Gibson settled all the preliminaries of the survey of the property. In September of the same year, Sprent, the Government Surveyor, began the work, but it was not until the 15th November, 1847, 22 years after the charter passed the Great Seal, that the British Government issued the title deeds.

III. EXPLORATION.

The north-west portion of Van Diemen's Land was almost a *terra incognita*, but the sea-coast was well known. Bass and Flinders on the voyage of 1798 named and described several of the prominent features of the coast—Round Hill, Table Cape, Rocky Cape, Circular Head, Hunter's Island, Cape Grim, and Trefoil Island. Flinders also described a remarkable flat-topped peak, inland, which had much the appearance of an extinct volcano, but he did not name it. In 1804 Acting-Lieut. Robbins, of H.M.S. *Buffalo*, was sent from Sydney to examine the coast near Cape Grim, and Robbins Island was added to the map. Bass Strait was a favourite resort of whalers and sealers and it is quite certain that the whole of the northern coast was known to them. Although none of the rivers west of the Tamar were named, three of them were spoken of as the first, second and third western rivers respectively. In 1816, James Kelly, on his boat voyage around Van Diemen's Land, went ashore at Circular Head and in the vicinty of Burnie, but did not go inland.

During his administration Governor Sorell encouraged exploration throughout the island and efforts were made to probe the secrets of the north-west. He hoped to find extensive tracts of country suitable for sheep and cattle, but the reports he received were not favourable and a practicable route to the district for stock could not be found. Captain Rolland penetrated some distance inland, but was turned back by a precipitous mountain mass, which derived from this the significant name "Rolland's Repulse." The district around the first western river was visited and the tidal estuary became Port Sorell; but beyond the second western river little was known. In 1824, Captain Hardwicke voyaged along the north-west coast and made an examination of the country. He was delighted with the land around Port Sorell, but the land from the second western river to Rocky Cape he pronounced worthless and unfit for human habitation; of Circular Head and the land in the vicinity of Cape Grim he gave a glowing report. Sorell also sent James Hobbes with two boats, manned by twelve convicts, to make a minute exploration of the coast of Van Diemen's Land, "to ascertain every opening and indication of a river or inlet, and to examine the country wherever he could." Hobbes was away for a little more than five months, but had nothing good to say of the north-west coast. The land at Cape Grim he considered "useless for agriculture, except in small patches," while the country from Circular Head to Port Sorell he describes as "mountainous and barren," remarking that even the natives travelled only along the coast-line.

It was in this unexplored territory that the Van Diemen's Land Company hoped to find good sheep country. Nothing could be learned from maps. Scott's, the official map, was hopelessly wrong. Until Curr returned to Van Diemen's Land he was under the impression (his idea being based on Scott's map) "that a line of impassable mountains extended from the southward to Quamby's River, where they joined the Asbestos Hills, and placed the western country literally several days' journey from the uninhabited parts of the country."

The primary object of the company was to improve the quality of wool, and for this purpose an extensive area of good pasture land was indispensable. While the charter allowed the Company to employ its capital in cultivating and improving waste lands, the acquisition of forest lands and the clearing of them was but a secondary consideration to the directors. Curr was fully aware of this, and looked for pasture land similar to that open, lightly timbered country of the eastern side of the island, so eminently suited for sheep, and spared no pains in his efforts. From information he gleaned soon after his arrival in Hobart Town, he thought he would have little difficulty in finding a suitable area. Nothing shows us better that he foresaw little difficulty, than that he set out to locate the land taking with him two carts constructed with tilts, and loaded to a considerable height. On the 22nd April the party, consisting of Edward Curr, Henry Hellyer, Joseph Fossey, Clement P. Lorymer, and five men, under the guidance of a constable from Launceston, who had been out after bushrangers, crossed the Quamby River, and entered the district reserved to the company for selection. If any thought that the location of lands was in the way of being a picnic, he was soon disabused of the idea. The district they entered was a dense forest. The ground, encumbered with fallen trees lying in every direction, made progress difficult, and the tilts, continually striking the trees overhead, were nothing but a hindrance. A careful examination of the country was made, but with the exception of a tract of land extending along the coast they found nothing suitable for the Company's purpose. Eventually, on the 20th May, they reached the mouth of the second western river, which they named the Mersey.

In the meantime Stephen Adey, the second in command, made arrangements to explore the coast-line. He bought a whaleboat, and hired the schooner *Ellen*, of 22 tons burthen, for his purpose. With him went Alexander Goldie, the agriculturist of the Company. The boats left George Town on the 27th April, under the charge of Richard Frederick, who was "well acquainted with every part of the north-west coast." The *Ellen* proving to slow, was left to follow as best she could and the voyage continued in the whaleboat. The third western river was entered, and explored as far as navigable. Here Goldie went ashore and climbed a hill, in the hope of seeing land suitable for the Company's purpose. Nothing but forest-clad hills stretched before him as far as the eye could reach. The prospect of finding pasture land in this vicinity seemed hopeless. Indeed, Adey regarded the whole district from Port Sorell to Circular Head as worth-

less and says in his report to Curr: "So entirely wretched is the country in this neighbourhood that, were I to attempt to describe to you the dreary and desolate tract which extends along the coast 40 or 50 miles as far as Roeky Cape and thence to Circular Head, it would cost you more time to read than the whole place is worth." Adey was looking for sheep pastures, and his strictures must be regarded in the light of this. He made a minute examination of the coast, entering every bay and creek between the Mersey and Robbins Island, but only at Circular Head did he find land that he considered suitable for sheep-raising.

Attention was then given to the country lying between Rocky Cape and Cape Grim. Taking the whaleboat and a crew of four men, with Frederiek as steersman, Goldie and Fossey left the Mersey on the 29th July. At Circular Head they landed and, after an examination of the peninsula, estimated that there were about four thousand acres of clear land, and "that a considerable quantity more could be made clear at a moderate expense." From here they went to the Duck River, which they named. Keeping close to the coast, and using the boat as a base, they examined the country from the Duck River to Cape Grim, and from Cape Grim to a river which they thought was the Pieman, but which was in reality the Arthur. This they attempted to cross but, finding it impossible, turned inland and entered a forest, where they had the greatest difficulty in getting through owing to the fallen trees, scrub, and soft mud in which they sank nearly knee-deep, while the rain poured down all the time. They realised that it was useless to look for pasture land in this type of country and, retracing their steps, returned to Circular Head. They then turned their attention to the forest country lying south-west of Rocky Cape, but the scrub and fallen trees were so difficult to get through that it was impossible to advance more than a mile an hour. Here they narrowly escaped with their lives for the river, overflowing its banks, surrounded the little knoll on which they encamped for the night, and threatened to sweep them away. As soon as the flood waters subsided they made their way back to the boat and returned to the Mersey after an absence of 48 days. This journey showed quite conclusively that the only land suitable for pasture was at Circular Head and in the neighbourhood of Cape Grim where there were from fifty to sixty thousand acres of good land of service to the Company.

As a result of these journeys it was decided to make a beginning at Circular Head and the brig *Tranmere* which, with sheep from England, had reached George Town on the 29th September, was ordered to Circular Head to land them. On the 24th October Circular Head was reached but, owing to the violence of the weather the vessel was forced to stand a considerable way out from the shore until the 27th, when the weather abated and the livestock were put ashore.

Meanwhile, exploration of the north-west district went steadily on. Hellyer, accompanied by Lorymer, worked down the western bank of the Mersey from a base they established about 20 miles from the mouth, and in October, 1826, attempted to get to the southward of the mountain range which had baffled Captain Rolland a few years previously. The heavily timbered country made progress slow, but eventually they succeeded in climbing a lower eminence a little to the south-west of Rolland's Repulse. The mountain which they climbed, Hellyer (who was somewhat of an artist) named Van Dyke, and another further west, Claude; to a mountain mass whose steep northern face stood out black in contrast to the snowfields that extended to the south, he gave the descriptive name Black Bluff. From Mount Van Dyke he saw to the southward "plains as far as the eye could reach, rather woody at the northern end, but open and undulating beyond." At the base of the "peak like a volcano," which lay north-west of him, about 30 miles off, he saw plains of great extent. Provisions gave out and they were forced to return to the Mersey where, had they not met a party of sealers, they must have perished.

In conjunction with these expeditions of Fossey and Hellyer, Curr made arrangements with Jorgen Jorgensen to proceed from the Shannon in a north-westerly direction towards Cape Grim. Jorgensen's was a romantic and eventful career. Born in Copenhagen in 1780, he entered the British merchant service and later joined the Royal Navy. He came to Australia with Lieutenant Grant in the *Lady Nelson* and, as chief officer of that vessel, assisted in the foundation of Van Diemen's Land. In 1825, after a series of remarkable adventures, one of which was the capture of Iceland, he was sentenced to transportation for life and shipped off to Van Diemen's Land where he arrived early in May, 1826. After some months he made application to be assigned to the Van Diemen's Land Company, and with difficulty obtained a transfer, whereupon he presented letters of recommendation, which he bore with him, addressed to Curr by Captain Dundas, a director of the Van Diemen's Land Company. When he was assigned to the Company, Curr used him as a leader of the third party of exploration. Early in September, 1826, Jorgensen, with instructions to proceed through the Clyde and Shannon districts to the west coast, near Pieman's River and then northward to Circular Head, set out with two companions, Mark Logan and Andrew Colbert, a black man, both of whom had a good deal of experience in the bush. On the 21st September, after being delayed eight days by flood waters, they crossed the Shannon and reached the south-west portion of the Great Lake just before sunset. During the whole of this journey they met with bad weather and the rivers were so swollen that they were held up for days together. The Ouse was reached on the 22nd but, so deep and rapid was it, no way of crossing could be found. In vain they worked up stream and, baffled, they went back to the hut they had occupied at the south-west end of the Great Lake eight days before. Supplies were running short, so they returned to the farm of Dr. Ross, near the junction of the Ouse and the Shannon, from where Jorgensen sent one of his companions to Hobart Town for supplies. Between the Great Lake and the Ouse he found "a considerable extent of fine open country, of itself sufficiently large to comprise the quantity of good land which the Company was to receive." In writing of these plains and their location, he says: "I regretted less being disappointed in getting over as the magnificent plains we are now upon require

more minute investigation. They stand in a north-east and south-west direction as far as the eye can reach, being bounded on the east by the large lake, and on the west by the river, and from the lake to the river is a distance of four or five miles." When the messenger from Hobart Town returned on the 11th of October they again set out and nine days later succeeded in crossing the Ouse about the junction of the James River.

[NOTE.—The paper at the point advances a provisional interpretation of Jorgensen's route across the Central Plateau. This interpretation has since been used by subsequent writers, but was later altered by Mr. Meston after several journeys made in 1940, 1945, 1946, and 1947 over the debatable country and after careful identification of Jorgensen's route, landmarks and bearings in the field. His conclusions are embodied in a paper published in the *Papers and Proceedings of the Royal Society of Tasmania*, 1955, on which the following paragraphs are based.—W.M.M.]

Jorgensen, in his report (Nov. 8th, 1826), claimed to have reached, but not climbed, the peak like a volcano which Hellyer named St. Valentine's Peak four months later; to have discovered the source of the Derwent in a lake adjacent to the peak; and to have penetrated to within twenty miles of the Pieman, a totally impossible feat (1).

Two lofty mountains that he saw in the distance he named Mt. Dundas and Parson's Hood. From the directions he gives, taken on 24th September, from what is now known as the Big Hill near Liawence, it is apparent that he saw first the summit of Mt. Cuvier, then Manfred—a gap—Mt. Gould and the Du Cane Range—a gap—then Ossa and the tops of Pelion East and Mt. Oakleigh. The Du Cane mass received the name of his patron Dundas, and Ossa he named the Parson's Hood.

He greatly overestimates his distances and some of his directions are hopelessly at fault. The latter may be explained by local attraction of the compass needle; for he tells us that "when placing the compass on a rock its vibration was so quick that I could make no observation by it." Thereupon he descended to the foot of the eminence on which he stood (Little Split Rock) and was enabled to take a bearing but, one infers, the attraction would still be present even if the instrument were not seriously impaired (2).

[NOTE.—In 1945 and 1946 Meston had an identical experience finding his compass unusable at this spot—W.M.M.]

He was making for a peak like a volcano, which, by his description, bearings, and distances must be identified as the highest point on the central plateau now known as the West Wall. He was obstructed by "a frightful chasm many miles in width, to the view a bottomless gulph." Avoiding this, they were impeded by a large river, which he supposed to be the Derwent, that pursued a S.S.E. course, and "issued from a large and magnificent sheet of water which is formed between the peak and a large range of mountains."

[Meston resumes.]

In view of the fact that, quite recently, Jorgensen's Journal has been quoted as authorative, it is interesting to note that Curr in Despatch 56, January 5, 1829, writes: "I regret that I did not long since inform you that I have some reason for considering Jorgensen's account of his journey to the Lakes to be in part a fabrication. The route as laid down on the map is certainly wrong as he never was at or near the Surrey Hills or Middlesex Plains. Persons walking the bush often unintentionally overreach the distance they travel in the day by more than half."

The night spent on the shore of this lake was the worst they had yet experienced. Snow fell without intermission and the frost was so severe that the snow on the ends of the log of wood that was burning in the middle would not melt. In the morning the snow was two feet deep and Colbert, the black man, became lethargic and wished to be left behind. Accordingly Jorgensen deemed it not only prudent, but necessary, to return. On the evening of the 26th October, two days after leaving the peak, they reached what, from his description, must have been Lake Echo. From here he proceeded by way of New Norfolk to Hobart Town where he arrived on the 1st November.

Although the country adjacent to Circular Head contained some excellent meadow and grazing land, it was composed in the main of barren, heathy plains and dense forest, so it was necessary to look for a selection elsewhere. Curr thereupon sent Hellyer to examine the extensive plains which had been seen from Mt. Van Dyke, in the neighbourhood of the "peak like a volcano". Leaving Rocky Cape on the 1st February, 1827, he travelled in a southerly direction until he reached Dipwood Mount. From the summit of this mountain he saw a large plain 15 miles south of Table Cape, and a large tract of grassy country on the north side of the peak. To this grassy country he determined to go. On the 7th February, realising that it was impossible to take the horses through the country ahead, he left them at Dipwood Marsh in the charge of the two prisoners he had with him. He and two men used to the bush, Richard Frederick and Isaac Cutts, each carrying a gun, a blanket, and a fortnight's provisions, then set off for the open country. For days they journeyed through dense myrtle forest and across a succession of wooded mountains. Although the men climbed trees, they could not pick out any distant object owing to the thick forest which shut them in. On the evening of the fifth day they caught sight of the peak, which appeared three days march from them. Progress had been extremely slow, owing to the dead logs and branches which impeded them at every step, while at frequent intervals they came upon clumps of horizontal scrub, through which they struggled, often at a height of 20 feet from the ground, tearing their clothes to rags. The wet, slippery branches, covered with moss and frequently rotten, caused many a fall, and they were unable to force their way for more than 500 yards in an hour. Not wishing to run short of provisions, and desirous of seeing as much of the country as possible, he now shaped his course to the peak, so that from its summit he might obtain an extensive view of the country around. On the sixth day, for a few hours, they came out into more open country and crossed a large river running north which, on account of the emu tracks he saw in

the neighbourhood, he called the Emu. This river we now call the Cam. After passing over a number of thickly wooded hills, they came to the foot of the peak. On the 14th February, St. Valentine's Day, in spite of bad weather, they began the climb from the steep northern side. At two o'clock in the afternoon, while they were still far from the summit, a thick mist and heavy rain, intensely cold, swept down, and they were obliged to take shelter in a nook of rocks. For three hours they waited but, seeing the weather showed no signs of clearing, they descended and spent the night standing against some trees before a large fire. The next day broke fine and clear, and they began the climb early. Hampered by scrub, through which they struggled as best they could, they at last reached the summit, where Hellyer set up a stump of dead tree, and carved on it "St. Valentine's Peak." A glorious sight met his eager gaze. There to the southward lay the very type of land the Company desired: a fine stretch of open country, consisting of gently rising grassy hills. This district he at once proceeded to explore, and found the hills dry and divided from each other by brooks, the sides of which were clothed with shrubs. To Hellyer, who always had an eye for scenery, the prospect was delightful. This country he called the Surrey Hills, "being about the same distance inland as that county in England"; and the open country north of St. Valentine's Peak, the Hampshire Hills. On the sixteenth day they crossed the Wey and, passing over several wooded hills, crossed a "noble river with a strong current gliding smoothly along from south to north." This river he called the Don, but today it is called, and more fitly so, the Hellyer. For two days he wandered among the hills, "which were delightful to look around upon," and on one occasion saw some native huts, in one of which he found a drawing of the moon done with charcoal. He now determined to make back to the horses, and climbed a high forest tier to get a bearing, but nothing could be seen beyond the neighbouring forests. Thereupon he set his course north-west and, on the 19th, came upon a deep and rapid river, larger than the Don, which he named the Arthur, after the governor of the island. With great difficulty they crossed the Arthur just south of the Wandle and plunged into the dense forest beyond. The country hereabouts is an almost impenetrable jumble of hills, densely timbered, and intersected by deep ravines. Along the Arthur valley they toiled, scrambling up steep hillsides, struggling through horizontal, carefully picking their way over rotten logs covered with a thick mat of moss, or pushing through scrub which tore at them and held them back at every step. Progress was extremely slow, a few miles a day. On the 20th they descended a steep hill and found their way barred by the Arthur. Again they crossed. On the 21st again they found the Arthur in their course but, seeing it turned away, they went around the bend and "came up to the foot of a long line of perpendicular cliffs of slate from two hundred to three hundred feet high which, upon examination, proved to be slate of the best quality." He brought away specimens, and engraved upon a large slab standing under the cliff, "Whoever is found stealing slate from this quarry will be dealt with according to law," and added the date. This slab lay there for nearly 100 years, until it was found by Mr. Kirkup in 1917 when, led by Hellyer's report, he took up slate leases on the Arthur. On they went, toiling through the dreary forest, over high mountains and down deep ravines, struggling through horizontal scrub, crawling with utmost difficulty along rocky forest-clad ridges, until in the afternoon of the 22nd they came to the Hellyer where it passes through a magnificent gorge. They succeeded in crossing, and struggled up one of the steepest hills they had yet encountered, to be met at the top with a patch of horizontal scrub. To add to their difficulties it was pouring with rain. Their strength was now failing for, in addition to their terrific struggle with the country and the elements, their food had run short. On the 20th, that is, the day before they crossed the Arthur for the second time, they had no provisions left but a little flour, which they mixed with hot water and ate, allowing themselves a pint a day each; a diet which, as he tells us, "is poor living to take such violent bodily exercise upon." The rain, the lack of food, and the tremendous exertions began to tell on the spirits of the men and they began to consider their position hopeless. Hellyer rallied their falling spirits, and they struggled on. At length, on the 24th, they stood on the brink of a frightful precipice with a river running below. They went along for some distance and, having found a place to descend, crossed the river which was running north-east. They were on the head waters of the Inglis. From a tree a little farther on they saw the sea and Table Cape, and immediately altered their course to north-west. Next day they recognised Dipwood Mount, five miles away, and "became a new set of men in a moment." Not a day too soon did they get back, for the men left on the marsh had given up all hope of seeing them again and had decided to leave the next morning and try to find their way back to Circular Head.

Curr was determined that the whole of the district wherein selection was permitted should be thoroughly explored before making a decision. He therefore sent Lorymer and Jorgensen with two men to find a passage from the Pieman to the district about the lakes, recently discovered by Jorgensen. The story of this expedition is one of inefficiency and incompetence, ending in disaster. The whaleboat landed them in a bay about 14 miles north of the Pieman and from there they struck inland. They lacked the fearlessness of Hellyer and, alarmed at the danger of the undertaking, after proceeding for about 15 miles, returned to the coast. Then, keeping to the seashore, they set out for Circular Head, traversing no new country. They loitered on the way and wantonly shot two kangaroo dogs on which they depended for part of their food. When they reached the Duck River, 16 miles from Circular Head, with nothing but heathy country intervening, their food gave out. After they had spent a day wandering over the sandflats trying to find a ford over the river, Lorymer attempted to swim across and was drowned. The others crossed on a tree about four miles higher up and returned to Circular Head, having accomplished nothing.

The land recently discovered by Hellyer seemed to be the best suited for the Company's purpose, so it was decided to make a settlement there. Accordingly, Fossey was ordered to leave Launceston

with a "cart and party of people to endeavour to find a road from the western marshes to the country which Mr. Hellyer denominated the Surrey Hills." He left Launceston on the 6th April. After crossing the Quamby River he kept close to the foot of the Western Tiers and, although he traversed a forest of giant gums, found no great difficulties until he reached the Mersey. On the way he named a small tributary of the Mersey the Mole River, because, like the river of that name in Surrey, it runs underground for part of its course. Beyond the Mersey the hills rise steeply, almost from the water's edge, and here he was compelled to leave the cart. Taking Richard Frederick and Isaac Cutts with him, he climbed out of the Mersey Valley, crossed the Forth Gorge and entered a park-like country, which he called Middlesex Plains. It seems certain that it is to Fossey we owe the names Cradle Mountain and Barn Bluff. None had penetrated the district before him. From where he stood when he climbed out of the Forth Gorge these two mountains stand like two giant sentinels and could not escape being named. Moreover, it is only from this side that the Cradle Mountain looks like a prospector's cradle and after, but not before, Fossey's journey we meet the names Cradle Mountain and Barn Bluff. He reached the foot of Cradle Mountain, but did not climb it. A large open tract, "apparently unbounded," he named Hounslow Heath, and to a charming valley he gave the romantic name, The Vale of Belvoir. Then he crossed an arm of Black Bluff, ascended and named Mount May-Day, and entered the district discovered by Hellyer. He was charmed by its appearance, and writes: "The country in the vicinity of this river [the Leven] is so admirably laid out by nature that it assumes very much the appearance of a nobleman's domain, both as to extent and good quality, particularly that part lying east of the river." Heavy rain set in soon after he reached the hills, and rather than plunge into the dense bush between him and the coast in bad weather, he remained on the Hampshire Hills, where he was reduced to living on kangaroo soup, thickened with a little flour. When the weather cleared he made his way to the coast.

In the meantime Curr and Hellyer examined the Inglis and the Emu to ascertain their capabilities as harbours and Hellyer was instructed to find a practicable route from the coast to the Surrey Hills. He decided that the road should begin at Emu Bay and sent two letters to Adey requesting three additional men and tools of all sorts to make it. Curr was absent in Hobart Town and the work was begun without his sanction. While in Hobart Town he engaged Mr. George Barnard, who had served as a lieutenant in the Royal Navy, to examine the coast between Round Hill Point and Table Cape, with a view to ascertaining the best situation for a harbour. Hellyer, however, by his decision and prompt action, had committed the Company to Emu Bay, and on the 26th September Curr and Barnard left Circular Head, not only to seek the best situation for a harbour, but "to see what conveniences the situation possessed from which Mr. Hellyer had commenced opening a road towards the Hampshire and Surrey Hills, and to determine the best situation for a jetty and store." Barnard preferred Table Bay for a permanent pier and Curr agreed with him. He also thought that a better route would have been found from the Hampshire Hills to Table Bay than that which was opened to Emu Bay; but the road had been under construction for nearly five months, and four miles were completed, so near the site of the present breakwater at Burnie, Curr ordered a wooden store and a jetty to be constructed. He took the opportunity of visiting the Surrey Hills and for the first time gained some knowledge of what the forest was really like. "The first eight miles lie through a forest altogether unlike anything I have seen in the island," he writes. "The myrtle tree, scarcely known except in this district, and enormous stringy-bark trees, many of them three hundred feet high and thirty feet in circumference near the root, exclude the rays of the sun, and in the gloom which their shade creates, those trees flourish which affect darkness and humidity . . . If, to this enormous mass of vegetation, be added another whole forest of fallen timber strewed thickly in every part and which occasionally lies in heaps to the height of twenty and thirty feet from the ground, some idea may be formed of the difficulty of penetrating such a country and opening roads."

Curr was sadly disappointed with both the Hampshire and Surrey Hills as sheep country, and realised that the district "could never be a first nor even a second rate sheep country." Nor did the cold and backward climate of the district escape his observation. In a letter to the directors, written soon after his return, he lamented that not one person in the service of the Company had colonial knowledge. "Had the Surrey Hills been discovered by a person who could have drawn a comparison between it and the old settlements," he writes, "I should have known its precise nature and value seven months ago as well as now." Yet he would not have the Court fall into the error of wholly condemning the district, and somewhat naively writes "that it may be profitable to the Company in some manner I have no doubt, and it must never be forgotten that we have no option."

By the 23rd February, 1828, Hellyer had finished the road from Emu Bay, and by the 23rd June of the same year Fossey had made a stock road in from the east. Both roads were necessary for, without the one inland, all the sheep must have been taken by water to Emu Bay, and the cattle either by water, or along the coast by a route much worse than the inland road. Without the road from the coast, all supplies must have been taken in carts over the inland road—an impracticable proceeding by reason of its steepness.

On the completion of the road Hellyer determined to explore the country lying to the south of the Surrey Hills, as far as the line of demarcation agreed upon between the Secretary of State for the Colonies and the directors of the Company. In pursuance of this he fearlessly pushed out into the wildest country. On the 7th November, 1828, accompanied by Fossey and three men, he set out on a journey that imperilled the lives of all. His intention was to travel on a S.S.W. course to the line of demarcation, and return through the country south-west of Mount Pearse, but bad weather set in and the rivers ran so full that they were forced to the eastward. On the fourth day, to obtain a view of the country ahead, he climbed a mountain

and saw extensive plains, beyond which rose a high mountain which he mistook for Mt. Heemskirk, though he concluded that, on the chart, it was placed several miles too close to the West Coast. The mountain on which he stood he named Mt. Charter, in commemoration of the day, the anniversary of the grant of the charter to the Company. To avoid the dense scrub, he kept to the hills as much as possible and climbed to the top of another mountain which, from an enormous rock crowning the summit, he called Mount Block. After a laborious and perilous descent, they came to "a noble river larger than the Mersey at Gad's Hill." This Hellyer named the Mackintosh. On an earlier occasion he had given the name Huskisson to a river further west, which he now realised must meet with the Mackintosh to form the Pieman. They determined to follow the Mackintosh but, so rugged was the country, after strenuous exertions they advanced only two miles in the day. To reach some open country they crossed the Mackintosh but found their way barred by another large river nearly as wide and very deep. This river, a tributary of the Mackintosh, he called the Brougham. A partly submerged tree spanning it provided a crossing but so rapidly was the river rising, owing to the bad weather that now set in, that, before the last man of the party crossed, it had risen six inches. Ahead of them was a rugged mountain mass, which he named Mount Eldon, but which the Government Geologist, Mr. Montgomery, in 1895, called Mount Farrell, the name "Eldon" having been transferred to a range further south. Just beyond was Mount Murchison, Hellyer's "Heemskirk," towering above all the surrounding country. He climbed Mount Farrell, and worked along the ridge, determined if possible to reach the summit of Mount Murchison to observe the surrounding country. Suddenly beneath their feet yawned a sheer precipice, at the foot of which ran a river "deep enough to float a seventy-four, and at least sixty yards wide." No way across could be found. The Canning, as he called this river, "was roaring and foaming along in a terrific manner." Nor could they return by the way they had come for the incessant rain had so swollen all the rivers that it was impossible to cross them. Their only hope lay in working towards the east and trying to head the rivers. After travelling for the greater part of three days in this direction, they succeeded in crossing the Brougham a few miles beyond two mountains he named Victoria and Sophia, after the young princesses. Snow now began to fall. They pushed on, only to find their way barred by an appalling gorge. To avoid it they had to move south-east. For one day and part of the next they struggled through blinding snow-storms when, the storm somewhat abating, they found themselves on the slopes of Barn Buff, with the gorge still in front of them. Then the snowstorm came on with greater violence than ever and they were forced to descend the gorge. Here the snow proved an advantage for, as it lay frozen amid the jagged, beetling rocks, it provided them with a support on the almost perpendicular sides of the ravine. In four hours they reached the bottom where the river proved fordable. They struggled on, but the weather was so thick that no landmarks were visible and frequently they had to deviate to avoid precipices. On the second day after descending into the gorge, the weather cleared, and towards evening they came in sight of the lake seen by Fossey the year before on the northern side of Cradle Mountain. Their difficulties were now over and in a few days they reached Burleigh. That there was no clear weather while they were toiling over such high mountains to enable them to see the nature of the distant country was to Hellyer "a mortifying circumstance." He was determined, therefore, to revisit this country, and early in March, 1831, he made an ascent of Cradle Mountain and again suffered severely.

Governor Arthur was anxious that the Company should be confined to the extreme north-western portion of the island—the district around Cape Grim—and acted on instructions received from Lord Bathurst, that the Surveyor-General was to survey the country within the limits prescribed for the Company's selection. Accordingly, J. H. Wedge, the Assistant-Surveyor, received instructions on the 13th December to survey, examine, and report upon the north-west district of the island for the purpose of locating a grant of land to the Van Diemen's Land Company. Rather than accept such land as Wedge recommended, the directors were unanimous in declaring that they would abandon the project entirely and submit to the loss of all money expended.

IV POTENTATE OF THE NORTH.

As the Company's operations would be some 4000 miles from the court of directors, and almost a year must elapse before a reply to any communication could be received, the appointment of the chief agent in Van Diemen's Land was a matter of the greatest moment. From an early period in the negotiations for the establishment of the company Stephen Adey had been led to expect the position would be offered to him. He was well known to several of the directors, had long practical experience with sheep and wool and had proved himself a successful man of business. His prudent character was a further recommendation.

It was not long, however, before a serious competitor appeared in the person of Edward Curr. The letter from the promoters seeking information regarding the possibilities of Van Diemen's Land for the growth of fine wool, on a large scale, was the latter's first intimation of the proposed company. He immediately became interested and resolved to become a shareholder. So vital was his information, so fertile were his ideas that, two months later, on the 2nd March, 1825, he replaced William Wilkinson as secretary *pro tem.* His services were further recognised in July, when in addition to a remuneration of £200 he was presented with a hundred guineas "as a testimonial of the sense the Court entertains of the zeal and ability he has displayed in assisting to arrange with the Colonial Department the terms of the Company's Charter, as well as for the valuable information afforded by him on many points of great interest and importance, and particularly for his judicious suggestions towards settling the plans for conducting the Company's business in the Colony" (1).

His intimate knowledge of the colony and his greater personal activity made his appointment as

the Company's Chief Agent in Van Diemen's Land inevitable, but something had to be done to redeem the expectations held out to Adey.

The question was "how the authority could be so divided between the two as to give the requisite ascendancy to one and, at the same time, preserve as much equality between them as should be consistent with a due subordination and a steady administration of affairs." After much discussion, in which both Curr and Adey participated, an arrangement was agreed upon. They were appointed the two commissioners on the part of the Company for the location of lands, and a council of three was to be set up for the general conduct of business in Van Diemen's Land. Curr was to be first member and chairman, Adey the second member, and the third "a colonist of property and respectability nominated by them." Paramount authority next to that of the court of directors resided in this council whose power, however, was to be merely legislative and corrective, not executive. Any resolution adopted by a majority of the council had to be put into effect by the chairman, and full provision was made for meetings. Until the council was constituted Curr, as Resident Agent, was to have the executive and chief authority over all the other servants of the Company. He would take up residence in Hobart and remain there as long as necessary. Adey was to reside on the lands as Superintendent of the Company's Estates, directing all operations and having, under Curr, chief authority there. Both men received the same salary, £600 per annum, and the same allowance, 22s. a day, when at their own expense (2). By letter of attorney recorded in the island the powers were given to them jointly (3).

The directors realised that this division of authority, the result of compromise, was a novel experiment of whose success they were somewhat doubtful. The preamble to the joint instructions, issued on the eve of departure, has a note of misgiving:

"They trust that their arrangement in this respect will be acquiesced in, and the duties of their respective stations discharged by both, with that cordiality and regard for the interests of the Company which they have every reason to expect from their known zeal and good disposition."

Applications for the position of Agriculturist poured in, and, eventually, Alexander Goldie was appointed at a salary of £200 per annum. Before he left England, however, this was raised to £300. Henry Hellyer was appointed architect and surveyor, Joseph Fossey and Clement Lorymer surveyors, each at a salary of £100 per annum (4). Curr, Adey and Goldie formed a committee of general superintendence.

Although nothing could be done towards locating the Company's lands until after the trial of Kellie, plans were made, stores purchased, free and assigned servants procured and information gathered about the north-western district. On the 13th of March Curr leased R. W. Loane's house in Davey Street as offices for the Company, and a residence for himself and family, at a rental of £200 a year. Although the rent was more than he wished to pay, he congratulated himself on having made a good bargain, for the house was nearly the best in the town and many inferior houses were let for higher rents (5). The grounds were extensive, the house was of ample size, there was a large and well stocked garden and good stable accommodation. It was admirably suited for a man in Curr's position with a young family. To this home Curr gave the name Belle Vue, commemorating the house near Sheffield where he was born.

The establishment of the Council of Management, the only power which could override Curr's will, was left in abeyance, Curr stating in explanation that there had been no occasion for a third member to settle any difference of opinion between Adey and himself, for none had arisen. The Council, however, had other functions and the advice of a judicious and experienced person would have been invaluable. No meeting could be held while he and Adey were absent from Hobart looking for land and it was decided to defer any action until after their return (6).

No moneys could be drawn from the bank without the warrant of the chairman of the council and one other authorized person. At the beginning this was Adey, but his absence from Hobart searching for suitable lands made it necessary to have another person authorized to join the chairman in signing orders for money. The third member would have been the natural person, but no nomination had as yet been made. As the instructions permitted the Council to appoint a Treasurer, George Cartwright, a solicitor of Hobart and a director of the Bank of Van Diemen's Land, was appointed at a salary of £100 per annum, and authorised to countersign money orders. The appointment was merely a temporary one, Curr being unwilling to make it permanent on the score of expense (7).

When the Company was first proposed one of the arguments brought forward in its favour was that the colony would benefit. The great need of the colonists was capital to develop their holdings and they confidently expected that the Company would, in some measure, remedy this want by lending money on mortgage at moderate interest. This the charter permitted them to do. Almost from the hour of their arrival agents were approached to lend money on mortgage, but their hands were tied, for definite instructions forbade this without the special sanction of the directors.

Both agreed that, while the making of loans was not the most profitable manner of employing their capital, it should be done. Accordingly they asked for the requisite authority. Curr reported that a very high rate of interest might be obtained, but recommended that advances be made at from eight to ten per cent (8), and affirmed that such loans might be made with perfect security for the payment of both interest and of principal.

He was loth to destroy the expectations of the colonists and, in reply to applicants, said that they would not be in a position to lend money for at least nine months, for when the last advices left England, the shares were not on the market and until then the operations of the agents would be extremely limited (9). The directors, however, refused to grant the request of their agents.

This refusal increased the body of opinion hostile to the Company. As early as December, 1825 (10),

Bent's paper, "The Colonial Times," eautioned its readers against antieipations of great immediate advantage to the island arising from the Company's activities. Caution developed into suspieion when, soon after his arrival, Curr called on the editors of the two Hobart newspapers and told them that he did not wish the transactions of the Company to be reported in the eolonial Press. Bent now openly wrote of the undue political influence the Company was meant to have, seeing that its chief agent had been proclaimed a member of the newly-constituted legislative council and colour was given to his eomment by the fact that, in a couneil of six, Curr was the only non-offieial nominee. He had no doubt that the Company was interested in the eolony, but only so far as would enable it to make as much moncy as possible for the proprietors (11).

The agents brought with them 20,000 Spanish dollars, the ordinary eurrency of the eolony, although accounts were kept in pounds, shillings and pence, a dollar beng reckoned at five shillings. Curr wished to deposit 10,000 dollars in the bank at 5 per cent for four months, but the bank refused on the ground that no interest was given except on a fixed sum for six months. This Curr eventually accepted, but not before the "Colonial Times" had used the ineident to bring some diseredit on the Company by insinuating that gain for itself, irrespeetive of the colony's good, was its sole aim—"The gentlemen who represent the Company assert that their object is to make as much money as possible for their eonstituents" (12).

When Curr returned in June from the preliminary explorations he was unduly retiecnt. To all enquiries he replied that the result of his search for land would be known in "due time." This air of mystery fanned Bent's hostility and he wrote indignantly: "How wholly inconsistent with the high sounding professions held out in the prospectus of the Company that their principal object was the good of the eolony" (13).

Murray, of the "Austral-Asiatie Review," spoke of the land grant "whieh has been so unwisely and so improvidently granted to it upon promises, as the lawyers say. We have no objeetion," he continued, "to the English proprietors bestowing their money upon whosoever they please; but we have much objeetion to our island being cut and earved away worse than uselessly" (14).

All seetions of the eolonists looked to the Company to use some of its capital in aeeordance with its avowed objects (15) towards developing the latent possibilities of the island. Bridges and roads were needed, public buildings were wanted, and it was expected that the Company would make loan money available for these purposes. In November, 1826, the Hobart Town Gazette hinted that the Company should make available the eapital neeessary to construct a bridge across the Derwent (16). A fortnight later, as the agents had given no sign of any such intention, the Colonial Times again raised its voice: "The new bridge, an undertaking so generally usefnl, is at a standstill for capital—the Company is silent. Settlers have applied for loans—the Company is silent. Public works are projected—a new Gaol, Penitentiary, &c., to wit—the Company is still silent. No loans to Government—no loans to individuals—no contracts or offers of contracts for publie works—no rapid artieulation of money—no mining—no whaling—no sealing—no distilling—no brewing have been seen, nor any step yet taken in any one way to benefit the Colony by the Van Diemen's Land Company. Its objeet is evidently monopoly" (17).

The Government organ, the "Hobart Town Gazettc," was equally hostile. While admitting that there would be a few immediate benefits arising from sale of stock, the ereetion of buildings and the making of roads when the Company was settling in, the editor saw the whole eeonomie structure of the island threatenedd. The presence of the names of members of the British parliament and prominent English merehants in the list of proprietors, showed "an intention more benevolent than it would prove benefieial." He envisaged the Company as a great absentee landlord thinking of nothing but dividends for itself, much in the same way as the East India Company thought of India, and proclaimed that it would be prejudieial to the colony.

"We are differcnt from other British colonies. We are not a tropieal plantation where a few whites, thinly seattered among a slave population, endure a martyrdom of sickness for the sake of amassing riehes to spend in a healthier climate. We, a real and legitimate portion of the British people, have our abode in a land which presents no sudden means of realizing a fortune, but it affords what is better, health and eompetence. We trust, therefore, that no Company or set of men will drain our island of the fruit of native industry" (18).

He appealed to the emotions as well as to the intelleet, reminding his readers that they were in possession of "land whieh an enthusiastic spirit has led us to improve and to enjoy; on which we have suffered, with eomparative pleasure, the severest privations; where, for a time perhaps, we had no covering but the sky, and no sustenance but what the ehase and the wild woods afforded and where everything is endeared by the fondest recollections" (19).

Later attacks on the Company by Dr. Ross were poisoned by personal animus against Curr, but when he wrote this there could not have been the slightest indieation that he was to be the Company's chief agent, nor would his connection with the Company be known. This personal enmity dated from 1822, when, on his arrival in the colony, Ross considered he was slighted by Curr, at that time a resident in Hobart (20).

Ross was not alone in thinking that Van Diemen's Land possessed all the necessaries required to make it the England of the south. Sueh a belief was widespread among the free settlers and was of no reeent growth. As far back as 1816 Bent wrote in an editorial:—

"Twenty-five thousand bushels of wheat have already been exported to Port Jaekson out of the late harvest, and still there is enough and to spare for our own needs. From this earnest of industry and fertility in so young a eolony, and with so small a population, the mind is led to eontemplate on its prosperity and happiness at a remote period when agriculture shall be brought to a state of perfeetion—when a population more than is requisite for the purposes of agriculture will support the Arts and Commeree, extended through their means:

when fair Science and the Liberal Arts will rear their heads and all the benefits of political society be universally felt " [21].

Melville, in his almanac of 1832, also clearly indicates the local distrust and dislike. " The Company itself is not, nor is it likely to become, of a popular character. The merchants view it with distrust and jealousy although it is strictly prohibited from trading, and cannot, it may be presumed, interfere with them. The settlers like it not, regarding it as an overgrown monster who is trenching upon what should wholly belong to themselves. It stands, therefore, in a manner, alone in the colony: and if all its capital, or, indeed, any considerable portion of it, were invested in agricultural pursuits in a manner that private settlers are compelled to do in return for the land that is given, then the policy of introducing such a large establishment in a young colony might be less questionable than it is. As things now stand the Company has succeeded in becoming possessed of upwards of 300,000 acres of land upon terms that afford a most unfair comparison towards the private settler " [22].

The Launceston Advertiser was alike unfriendly: " Years have now elapsed since this fire-eating Company commenced operations and we do not find the colony improved in any one single particular. We object to all such companies and we maintain that such should be held under the most unyielding control. No excuse can be pleaded for a rich company not fulfilling to the letter every condition which the government may impose. The charter itself is far too tolerant and of that not an iota ought to be abated on any consideration. The Van Diemen's Land Company should be most rigidly kept to its promises, failing in which its grant, if not entirely resumed, should be curtailed at least one half " [23].

The directors confidently expected that shares would be readily taken up by the colony. One hundred and fifteen shares were specifically reserved [24], 50 for Colonel Arthur, the Governor, 25 for Major Abbott, civil commandant at Port Dalrymple, 20 for Captain Montagu, Arthur's nephew and secretary, 10 for Captain B. B. Thomas, manager of the Van Diemen's Land Association, and 10 for Captain John George Briggs, a well-known settler who, it will be remembered, was questioned by the founders of the Company in 1824 [25]. This was a good but rather obvious move on the part of the Company but, in view of the criticism and opposition Arthur was meeting with, it could not be possibly be taken advantage of by any member of the government even if he had felt disposed to.

At Curr's request 200 additional shares were sent out " for distribution among the respectable resident colonists " [26], but local support was not forthcoming. The government officials declined on the ground that, if they became shareholders, any favour shown to the Company would immediately be ascribed to self-interest, and they would not expose themselves to any suspicion of want of integrity. Private colonists were just as reluctant to take up shares, giving as their several reasons, want of money, the remote prospect of a dividend (in this they showed clear understanding of the situation), the jealousy of the company shown by individuals because the whole grant was chosen land, and the many malicious reports circulated in the colony [27].

The public advertisement of the shares brought forth a letter in the Press from a colonist advising his fellows to boycott " the all-devouring Company " because, if it were successful in cultivating only part of its lands, its competition in the limited local market would be disastrous to all. " In short," he continued, " look at an absentee Company in what point of view you will, they will be found the greatest curse that ever fell upon a country and particularly this: which was intended for the abode of persons who, from various causes, abandoned their native country and fled for refuge, seeking a habitation free from the exactions such as rent, tythes and taxes with which they found themselves overwhelmed. . . Buy no shares—show your determination—let the people of England see that you will take no part in the concern—that you perceive that it is a death blow aimed at your adopted country " [28].

Such attacks not only declare the grounds of opposition to the Company but reveal why there should be so much opposition to Arthur. The free colonists regarded Van Diemen's Land as a haven where they might escape from the disabilities of the old world. Arthur thought of it as a gaol of the old world and ruled it as such.

Although feeling ran high between the supporters of the government and the opposition, it is clear from these newspaper comments that the colonists, no matter what their political opinion, were as a body suspicious of the Company. The position needed tactful and delicate handling, but Curr's methods deepened the suspicions and made the colonists distrustful of his every move.

He was a man of magnificent physique, being six feet one inch in height and well proportioned. He had a fine head, large and square, a massive jaw and abstracted grey eyes. Intellectual ability and an imperious disposition matched his physical appearance. Fixed and determined in his resolves, he brooked opposition with difficulty and was inclined to take the control of affairs as his indubitable right.

His determined independence of thought and action was clearly shown soon after his arrival. As the only non-official member of the Legislative Council the merchants hoped for much from him, and the following appeared in the opposition paper: " To him the public looks as the nucleus around which may be found the support for the rights of the people of which it is probable they will stand so much in need " [29]. In after days, in Victoria, Curr threw himself unreservedly into the struggle against officialdom, but he was never willing to have his path mapped out for him.

Without loss of time he handed his resignation to Arthur. The latter, however, asked him to continue to serve as a councillor, stressing the fact that his knowledge and experience would be invaluable to the colony.

His coolness in an emergency, and something of his personality, are revealed in his encounter with the giant bushranger Pearson. Curr was stuck up the main road about 34 miles from Hobart and

robbed of his horse, saddle, bridle, watch and small sum of money. "A valise containing my papers I saved," he writes, "but have some reason to believe that the fellow had at one moment determined to murder me. I remonstrated with him on the inutility of such a piece of cruelty and he then seemed to consider that pursuit would be equally well prevented by depriving me of the horse" [30].

Towards the end of October, Adey sailed for Circular Head in the schooner *Ellen* to receive the *Tranmere* and to superintend the foundation f the first settlement. Early in December, much to the astonishment of Curr, he walked in at the Company's office at Hobart. Curr was furious. At no time more than in the initial stages did the infant settlement need the presence of the superintendent, yet here he was in Hobart at least nine days' journey away, having left his post within a month of the landing of the sheep, cattle, stores and servants.

Regarding this as a grave neglect of duty, Curr, as chairman of the council of management, insisted that Adey enter in the minutes a statement of the reason of his absence. This he did, declaring that after landing the indented servants and stock, the *Tranmere* sailed for the Tamar with the intention of returning in a short while with provisions, but she was delayed and, provisions at the settlement running short, the inhabitants grew alarmed. Accordingly they petitioned him to take the schooner, proceed to the Tamar in person and send provisions by the first fair wind, assuring him that only in this way would they feel safe. He did not hesitate to act on the petition, for he was desirous of being in Hobart as he had been absent from his family for fourteen weeks, and his wife was expecting confinement. As a third reason he stated that he wished to judge whether the country about the Western Marshes, and that seen by Hellyer from the top of a mountain in the neighbourhood, was adapted for the Company's purpose, and on his return he was going to look at it. He was also going to see if a road to Circular Head could be found in a north-west direction from Hobart, or along the coast itself [31].

That Adey wished to be with his family was a sincere enough reason, but the others were merely specious. If starvation really faced the young settlement, it was his duty to remain and keep up the failing spirits of the inhabitants, sending one of the subordinate officers (there were four of them) to bring provisions. Actually the fear of starvation was the outcome of a state of mind engendered by Adey himself. The land seen by Hellyer and the Western Marshes [32] bordered on the settled districts, and in view of Arthur's refusal to allow the grant being near the settlers, tacitly abandoned by the agents when they established their first farm at Circular Head, Adey would have been wasting his time examining them. So far as the road to the north-west was concerned an exploratory party was already out, and, besides, he had three surveyors for such work. At this time the establishment at Circular Head needed his closest attention.

The true reason for his desertion of the settlement lay in his own character. He was not of the stuff to carve a settlement from the primeval bush far removed from city life. When he accepted the position of Superintendent of Farms he completely failed to imagine the conditions he must face. The giant eucalypts, the scrub, the isolation were so different from the open downs, the neighbouring villages, and "meadows trim with daisies pied" of Great Britain, that his heart quailed. Nor was he constitutionally fitted for such a task. He grew despondent and dissatisfied. To Goldie and Hellyer he was in the habit of saying on all occasions that he did not see how the undertaking was ever going to pay and that it was very probable that it would be abandoned. Soon these opinions were as well known to the men as to the officers and before long no one had the heart to do anything. Adey had many good qualities but he was totally unfit for the position in which he was placed. He was quite unable to control the mixed crew of indented servants and convicts at Circular Head. He had no idea of managing men. Where he should have been decided and resolute he was capricious and vacillating. In a few days the convicts had taken his measure and were openly insolent and insubordinate. He was equally incompetent to supervise farming operations. Goldie, the Company's agriculturist, never spoke of his management both of men and affairs "otherwise than in terms of the most unmeasured contempt and ridicule" [33].

The great distance at which it was probable the Company's lands would be from the inhabited districts led Curr to ask that Adey be made a magistrate of the colony, so that he might be able to exercise proper control over the servants both free and assigned [34]. To this Bathurst agreed [35]. This promise clashed with local procedure, for by an act of the Legislature passed in New South Wales when Van Diemen's Land was still a dependency, no magistrate could personally decide in matters relating to his own servants [36]. When his attention was drawn to this Bathurst told Arthur to confine Adey's authority "within those limits which the Regulations on that subject may prescribe, excepting in so far as you may judge it expedient to dispense with them in his favour" [37].

No decision had been reached before Adey proceeded to Circular Head. On his return he at once opened the question, stating that because he was not a magistrate he found great difficulty in suppressing insubordination and neglect of duty among the assigned servants. He was merely deluding himself. While no doubt the office of magistrate would be of some assistance in controlling the convicts it would not supply his defects of character. Arthur was disposed to make him a magistrate and leave him to act or not, according to his discretion where the Company was an interested party. Cartwright, the Company's solicitor, thought that Adey could not legally act. In this opinion he was supported by the Hobart magistrate and others, but Curr dissented. However, to be on the safe side, the latter advised that when the directors appointed a surgeon they should select one fit to be a justice of the peace [38]. In the midst of the discussion a letter arrived from Goldie asking that a military officer who could act as a magistrate, and a detachment of soldiers, be sent immediately to maintain order [39]. The situation disclosed by the letter revealing the ina-

bility of both Adey and Goldie to control men. The position that Goldie faced was in the main the fruit of Adey's rule, but in his handling of it he showed himself quite as ineffective.

Two days after Adey left, the convicts applied to Goldie for more rations. As the regulation Government allowance had been issued, he refused. There were no immediate developments as it was Sunday, but on Monday and Tuesday they refused to go to work. Wednesday was ration day and Goldie issued the regular allowance with the exception of salt. To his amazement, just before midday, they all appeared before him and declared their readiness to go to work. Such a situation was beyond him; he weakly said that since they had ceased without his consent they might do as they pleased. And they did so. Never a day passed without some of them remaining in their huts under the pretence of being ill. At one stage there were as many as eight away for several days, two of whom had done no work for more than a fortnight. Some of them had not received the regulation allowance of blankets, and under the pretence of having caught cold because he had but one blanket to cover him, one man stayed away from work for some days.

Just before Christmas one, bolder than the rest, demanded more rations and, when they were refused, became insolent. This was more than even Goldie could endure, so he ordered the blacksmith to make a pair of handcuffs, and put them on the culprit. As there was no place of confinement he chained him to a tree, but was unable to keep away his companions, who crowded around openly sympathising with him.

On Christmas Day, to mark the occasion, Goldie ordered fresh meat for all hands and a gill of rum for each. Angered by the parsimony of the rum allowance the prisoners refused theirs, demanding nothing less than a pint apiece. But Goldie was firm, or perhaps obstinate would be a better term. Some of the free men clubbed together and bought some additional rum for themselves. This the prisoners stole and soon all were drunk. They wandered about, shouting out their drunken insolence, threatening violence and creating much disturbance. Presently they came into conflict with the freemen and a general fight ensued, Goldie looking helplessly on. Thoroughly frightened and fearing that the convicts would murder them all, he refused to allow the *Tranmere* to sail.

He begged Curr to engage a surgeon and send him to the establishment, not as one would imagine to look after the health of the little community, but to supervise flogging which he did not dare carry out unless a surgeon was present. This news alarmed Curr and he asked Adey to return at once to quell the disturbance. The latter, realising he could not cope with such a situation, refused to go, pleading as excuse that only a magistrate could do anything. Curr was therefore compelled to go himself [40]. On his arrival he at once summoned the men together, both free and assigned, and held an enquiry. He found that the convicts had been insolent and insubordinate enough both to Adey and Goldie "much more than he ever knew men to be before or since" [41], but that there was not the slightest ground for fear if Goldie would but show himself firm. Much of the dissatisfaction arose from an absence of bedding and blankets, a matter he soon remedied. The ringleader he found guilty of gross insubordination and sentenced to solitary confinement in irons for 14 days on a diet of bread and water. To encourage a better spirit, and make the assigned servants more satisfied he promised pay for such work as splitting shingles. Having speedily restored order, and removed the despondency under which he found the officers labouring, he returned to Hobart Town [42].

Arthur refused to send a subaltern and some soldiers to Circular Head, because the detachment would be so small that military discipline could not be maintained and the soldiers would tend to fraternise with the convicts. This objection Curr agreed with. Adey, however, was appointed a justice of the peace and returned to Circular Head. Curr swore in two constables whose pay Arthur insisted the Company had to find. He also wished to establish a magistrate at the establishment whose salary the Company was to pay. Curr objected to this and demanded that, if the Company paid, it should have the right to appoint; a condition that Arthur would not listen to for a single moment [43].

To mitigate to some extent the inefficiency of Adey, Curr divided the establishment into four distinct departments; the farm and stock departments, the survey, the works, the store. The farm and stock departments, comprising the clearing and fencing, the cultivation of the lands and the general charge of the livestock was handed over to Goldie. Hellyer was given charge of the survey department; Watson, the superintendent of mechanics, was placed over the department of works; and White was given the store department. All vessels and boats were attached to the works department. The immediate superintendence of the men was to be the duty of the heads of the departments and each head was to furnish returns to the Chairman. All the departments were to be under the general superintendence of Adey, but personal and individual supervision of them by him was declared unnecessary. He was to be as far as possible an independent magistrate [44].

On the 15th June Adey was back again in Hobart, this time to make preparations for conveying his family to Circular Head. Relations between "the chieftains of the Company" [45] had been strained ever since Curr's return from his visit to suppress the mutinous behaviour of the convicts. What he saw convinced him of Adey's total unfitness either to manage men or to supervise a farm, and he viewed the future of the Company with anything but satisfaction. In consequence it was scarcely in his power to meet Adey "without mortification" and on occasions his feelings found expression in words [46]. Unanimity was now impossible, and the appointment of a third member of the council of management was essential. John Kerr, a merchant of Hobart Town, was offered the position for twelve months at a salary of £100. For every meeting in excess of fifty he was to receive an additional two guineas. To qualify for the office he was required to take up at least twenty shares. On the 21st June he notified Curr of his acceptance and took his place at the Council Board.

The directors had expressed their desire that Curr should become a resident at the establishment as soon as possible. They felt that his "presence on the lands to direct and encourage the labours in that important department would be of the greatest use and advantage" [45]. He was urged to make some temporary arrangements for his family at Hobart Town for the short while that he would need to be at the seat of government. This was discussed by Curr and Adey immediately the latter returned to Hobart. They agreed that as Circular Head, the only place occupied by the Company, would not be its principal settlement and could not be its headquarters since the area available for a sheep farm was far too restricted for their purpose, it would not be advisable to incur the expense of erecting a residence there for the chairman. Moreover, it was not advisable for him to leave Hobart Town at such a stage in the Company's affairs, nor would it be so for at least twelve months [46]. Their hopes of obtaining adequate land suitable for pasturing sheep had again been raised by Hellyer's discovery of the Hills.

By this time Adey realised his unfitness for the position he filled and looked around for a means of escape. His wife, too, had no wish to submit to the loneliness, inconvenience and general disabilities of so retired a place as Circular Head, shut off from the rest of the island by trackless forests, with no means of access except by the Company's tiny boats of from 25 to 30 tons burthen. Hobart was far enough removed from the amenities of life without imprisoning herself where she would be entirely deprived of personal intercourse with any woman whom she could meet as an intimate.

The directors' request that Curr reside on the Company's lands suggested a method of release. On 9th July, Adey proposed in council that he resign his position as Superintendent of Farming Operations, and become the Company's agent in Hobart Town from 1st October at a salary of £200, the amount Curr himself had suggested as payment of such an agent when both he and Adey should be resident on the Company's establishment. In addition there would be £10 per annum for stationery. He pointed out that this arrangement would not only enable Curr to meet the wishes of the directors in respect of residence, but would be a desirable measure of economy, for the Company would save some twelve or thirteen hundred pounds per annum besides the expense of moving his furniture and family to Circular Head. As resident agent he would purchase such stores as were required, negotiate bills on the Company, procure free and convict labour and conduct negotiations with the Government in accordance with the directions of the Chairman. He would not, however, resign his seat on the Council of Management and would retain his power of attorney [47].

Such a proposal came as a pleasant surprise to Curr, but he foresaw difficulties in the operations of the Council of Management if he were to be on the north-west coast while the other members were in Hobart. A few days later he signified his agreement to the proposal, but considered that if he were to undertake the superintendence of the farming operations he should do so at once. Hellyer's discovery of the Hampshire and Surrey Hills (the true nature of the district not being yet known) make him think that the Company's chief operations would be carried out on there and at some port on the adjacent coast. As no works of any kind had begun, it was better that he should set them out rather than Adey who would no sooner begin than he must return. But the latter was not prepared to resign at once nor could he with propriety enter upon his new post at the old salary. Eventually a compromise was reached. Curr was to go at once to Circular Head while Adey remained in Hobart Town acting for the chairman, entering on his new office from 1st October [50].

The directors, for their part, had resolved to alter the arrangements for control originally decided. On 13th August they wrote to Curr informing him that the power of the chairman of the council of management was to be paramount [51]. A few months later they abolished the council and instructed Curr "to take upon himself the chief management of the Company's concerns in the colony" [52]. He was, however, to consult with his officers in regard to expenditure on any buildings, bridges, piers, &c., which involved a cost of more than £200. He could not construct any works at a cost of more than £500 without the consent of the Court of Directors. The departments of sheep and wool were to be put under Adey's "sole and absolute control," and in Curr's absence he was to have complete charge of the establishment [53].

Legally the powers of the two men were still equal, for the directors neither revoked nor altered the original power of attorney on record in the island, but they wrote to Adey and asked him to refrain from using his power to interfere with Curr's duties as chief agent. But when these instructions reached the island the position they related to had completely changed.

When Adey proposed to act as the Hobart agent of the Company at a salary of £200 a year he was not relegating himself to poverty. He was a man of considerable means and, in a plan under discussion in the town, he saw an opportunity of investing some of his capital to advantage and of using the undoubted financial ability he possessed. The handsome profits made by the Van Diemen's Land Bank encouraged the sheriff and other public officers to plan a joint stock bank. Adey associated himself with these, and the Derwent Bank with a capital of £20,000 was the outcome. It opened its doors on 1st January, 1828, with Adey, a large shareholder, as managing director and cashier [54].

Transactions with the bank led to Adey's final rupture with the Company. At the beginning of March, 1828, Adey removed the account of the Company from the Van Diemen's Land Bank to the Derwent Bank, giving as his reason the defalcations of the cashier to the extent of £2000. When Curr learned of the change he objected on the ground that the reason was insufficient and said that Adey, by virtue of his connection with the Derwent Bank, laid himself open to accusations of helping his bank at the expense of the creditors of the Van Diemen's Land Company. In view of the bitter feeling aroused among the merchants by the creation of the Derwent Bank, Adey's action was

likely to injure the Company and Curr's protest was justified. As the main business of the banks of the colony was in discounting bills at three months, the newly established bank had for some time to depend almost entirely on its capital, and whatever the motives that actuated him, Adey's action benefited his bank.

Curr ordered him to return the account to the Van Diemen's Land Bank. Adey refused to do so and demanded that the matter be decided by the Council of Management. Curr now played his trump card, producing the Court's despatch of 23rd August, 1827, wherein the power of the chairman of the Council was declared supreme. This was the first intimation of the ruling Adey had received. He at once restored the account and sent in his resignation as from 26th August, the date on which he considered his three years' engagement expired, giving as his reason that Curr had now proved " that his sole fiat " was in future to determine the policy of management (24). Curr opposed his resignation, but Adey insisted, proposing, if necessary, to take legal advice as to whether he was entitled to retire or not (25). In his management of the affair Curr received the " unqualified approbation " of his directors. The position thus vacated was offered to and accepted by John Kerr.

Adey's resignation and the Court's despatch (26) abolishing the Council of Management reached Curr simultaneously. The entire control of the Company now rested with him and when he styled himself as he sometimes did " the potentate of the north "(27) it was no idle boast.

The little communities ordered themselves in accordance with his instructions, they were fed and clothed from his stores, he issued general orders which had the force of laws, communication with the outer world was by means of vessels whose movements depended upon his will, and in him as magistrate were vested the powers of the Crown.

The following assessments of his subordinates were furnished to the Company by Curr at their request.

Co.'s Office, Circular Head,
4 Jan., 1830.

"Enclosed in this despatch are the following character sketches:—

Mr. Alexander Goldie: Suptdt. of the Hampshire and Surrey Hills establishments is a well educated, clever, intelligent active man of 30 years of age. He was well versed when he came here in the theory of agriculture and not deficient in the practice had he remained in a country in which the niceties of the art requires to be attended to under such tuition he would have made a first rate farmer. Mr. G. is a good judge of stock which in his situation is of the first importance. He is also a very good judge of the character of the men under him and deteets their bad qualities and dispositions with great readiness and tact; a circumstance who enables him to dispose of them in the most advantageous manner. In other respects I may say that he is a good tempered man, one with whom it is a pleasure to transact business and, as a member of our little society, he is a most agreeable companion, on the other hand I am sorry to say that there is a good deal of cunning duplicity and insincerity about him, and great deal of hiding of faults to save appearances and as much attempt to make an appearance of zeal and industry. He is the very reverse of a candid man. He *can* make an effort but he is not uniformly diligent; he has no anxiety and his zeal is preeisely of that quality which would not regret any misfortune that should befall the Company so that he was not the person to blame for it. This feeling was but too conspicuous when Mr. Adey was here and he is much too familiar with his men, I fear, prompted apparently by an inordinate love of gossip and seandal, and a desire to know everyone's faults and weaknesses. Accordingly he does know everything that is discreditable to every person, and I never hear the seandal of Circular Head until I go to the Hampshire Hills. As a farmer he does not make a proper comparison between the end to be gained and the cost of gaining it. Hence in a great measure the dreadful destruction of working cattle wherever he has had the management. The Stallion sent from England was almost wrought to death, the Durham Bulls were severely wrought and I was surprised recently to hear, though not from him, that a very old mare which was left in his care last winter to be forwarded to this place, and which has done nothing for years but breed, was employed in carrying a pack saddle through those dreadful reads and she died under his care. I have had so much experience of Mr. Goldie's mismanagement in this way, that I have long determined never to entrust him with a mare or even valuable horse. I have an impression that if I had been at the Surrey Hills last season fewer rams would have been lost. Not that I understand the management of stock as well as Mr. Goldie does but that I should have been more careful and anxious for them and more provident. Mr. Goldie has had much to learn since he came here. For instance, when he was managing here, he sent boats and men 20 or 30 miles in quest of fencing materials after he had had them employed in splitting shingles in the midst of excellent materials within 4 miles and he finally erected a fence in which all possible bad qualities are brought together, the worst I dare say that was ever put up in Van Diemen's Land, and such as no man of eommon sense eould have been expected to tolerate. It is now nearly down and must be renewed this summer. Even at the Hampshire Hills amidst the very best of materials his fences are by no means what they ought to be, as I have pointed out to him. Upon the whole Mr. Goldie is a very mixed eharacter, he possesses many exeellent qualities and some bad ones. He possesses sufficient talent for his situation and in some sense may be entirely relied upon, yet if his conduct were not pretty closely looked into he would content himself with appearances. He would be an exeellent servant under a strict master and is upon the whole a desirable servant of the Company. Any other person in his situation would have his faults.

Mr. Henry Hellyer: Surveyor and architect, has, I believe, a perfect knowledge of his profession and is altogether a clever intelligent man. In exploring the Country he has been invaluable, and had submitted to hardships unknown in ordinary life with a contentedness and good humour and a perseverance which no other person, I think, could have exhibited. He gains everyone's good will and

is in all respects a man of sterling worth. On the other side his prominent fault can only be expressed by the homely proverb "His geese are all swans." He looks more at scenery than at land or grass and his prejudices are insurmountable. No arguments, or facts either, can ever convince him that he has made too flattering an estimate of his discoveries. He has an ingenious answer to every objection. He is exceedingly chimerical in all his ideas, a great projector, and would be expensive to a degree (I do not mean personally) if left to himself. He would have mansions where I have cottages. All these failings being entirely checked and expending themselves in magnificent ideas do no harm: again he is too quiet and easy to manage unruly men, hence he never could with advantage have superintendence of extensive works of any kind unless they were carried out by contract.

Mr. Joseph Fossey: Surveyor, and now in charge for a short time of the establishment at Woolnorth, is a compound of many discordant qualities. He is not a man of talent, neither is he wanting in that respect, but is quite conversant with the principles of his profession but is exceedingly slow in practice arising from too great an attention to minutiae. If he were set to survey a district in Van Diemen's Land he would do it with as much exactness as if he were measuring Covent Garden Market. His expense of the survey would amount to twice the value of land but it would be quite accurate in the end. When he was acting as storekeeper here, he weighed tons of iron to ½ oz. and probably if told otherwise would have said that he would do it right or not at all. He is an exceedingly trustworthy man and can be entirely depended upon for anything he is competent to undertake and hence is in many cases a valuable servant. In his general character he is made up of peculiarities, affecting to think and act on all subjects differently from everyone else and from himself, too. Yet altogether he is a man of worth and a conscientious servant of the Company and I am very sorry to part with him, because I know that I can place dependence upon him."

In giving these character sketches Curr says: "In conformity with your desire expressed to me in despatch No. 91, § 3 I beg to give you in this despatch "my character of each person employed in the service." In doing this I think I may safely say that I have no mind to divest myself of any prejudices for or against any individual and that has been my study and practice ever since I have had the direction of your affairs in this colony, making every proper allowance for every person's faults and not expecting perfection from anyone. If I allude to the faults of each individual and particularly of your officers as well as mention their good qualities, you I am sure will acquit me of any desire to depreciate them in your estimation. It is undoubted that each one has his faults and in giving their true characters these must be told."

[*Supplementary note by K. M. Dallas.*]

From March, 1833, to December, 1834, Curr was absent from the colony on a visit to England to concert plans and study the "immense emigration" then being developed. On his return he began a policy of retrenchment and reorganisation.

Whatever the merits of the new policy may have been it would have been upset by the general changes in the colonies arising from the extension of settlement to the Port Phillip district. In December, 1835, Curr reported to the Directors the formation in Hobart of the Port Phillip Association and also that Governor Arthur wanted to have the new district "attached to Van Diemen's Land." Curr urged them to apply for 250,000 acres, seeking a new charter if necessary and informed them that he intended to sell his own lands and buy land at Port Phillip.

He had six more years as Agent during which he must have been continually aware of the opportunities he and the Company were missing. His differences with the Directors were clearly due to the boom which followed, foredooming the efforts of the Directors to find tenants with capital in England and aggravating the labour shortage, since it was clearly the Australian prosperity which brought about the end of transportation and provided the revenue to finance a supply of cheap labour from assisted emigration. Curr resisted the proposals to send him both tenant farmers and indentured servants. He knew the tenants would prefer Port Phillip and cautioned the Directors against making special promises to unsuitable types, saying "there is hardly a gentleman in England who is not acquainted with some person whom he wishes 15,000 miles away." He lacked the resources to prepare dwellings and farms for tenants who lacked both capital and experience.

On indentured servants there was some divergence of view. The Directors, anxious for dividends, continued to send these, in spite of Curr's protests that Irish families sent in 1840 were equal to second or third rate prisoners and that he preferred to hire ticket-of-leave convicts; in 1841 he complained that his convicts were being corrupted by the Irish servants.

The grounds for his dismissal seem to have been found in his clashes with the colonial Government. Even before he went to England it had been found that indentures of servants were not binding in the colony, except to the extent of recovering the cost of passage, and in 1839 a Bill was introduced to clarify the position. Its rejection was ascribed to Montagu who in the debates described the Company's methods as "kidnapping" and "like those of the recruiting sergeant." Curr was censured by the Directors for his intemperate language in reply and was later threatened with dismissal if he should persist in such conduct. We should note that Montagu was the nephew of ex-Governor Arthur and that Arthur's policy towards the Company did not end with his departure. Moreover, on Arthur's return to England the Directors had apologised to him for Curr's behaviour and a few months later Curr was ordered to apologise to the colonial Government.

The notice of dismissal seems to have been expected. Curr gave the Directors clear advice on the choice of a successor and later commended their choice. In one letter he made the comment: "I retain here an authority the Court did not confer and cannot take away." He was in fact the Company. What measure of success he had achieved in opening up a region whose resources

had then a low economic potential, in proving the possibilities and disproving wishful thinking, in exploiting the new trade to Port Phillip in stud stock and timber, was due to his management. His difficulties were those inherent in an absentee company faced with a colonial Government which gave it the bare letter of its legal rights.

We well may conclude that the crisis of 1841 showed him the folly of linking his own fortunes any longer with those of the Company or the colony, that there was no future for a potentate of the North.

V THE COMPANY AND THE ABORIGINES.

The initial stages of the Company's development were marked by frequent clashes with the aborigines, that dark-skinned race who inhabited Tasmania long before any white man set foot on its shores. Comparing them with the natives of New South Wales, Curr writes:

"They are inferior to them in every point of view, their persons, their huts, their arms. They are evidently a distinct race as is apparent from the fact that those of New South Wales have lank shining hair and copper-coloured complexions while those of Van Diemen's Land have the crisp curly hair, thick lips and black skin of the African negro[1]".

Curr knew that much of the success of his ventures depended on his being able to live at peace with the natives and the Directors in London were equally well aware of this and continually exhorted their agents to "lose no measure to bring the natives into a state of civilization and usefulness".

This was no easy task. The V.D.L. Company made use of the native trackways in their journeys of exploration and encroached on native hunting grounds for grazing and pasturing.

It is on land owned by the Company that the aboriginal carvings at Mount Cameron West were discovered in 1931, evidence that the coast had been frequented by the natives long before white men set foot there and on much of the land at both Surrey Hills and Hampshire Hills the scrub had been kept down by the annual burnings of the aborigines who hunted there and reappeared quite rapidly after the land had been taken from them[2].

Curr was well aware of the difficulties of the situation. His attitude is clearly expressed both in despatches and orders.

"It is too late to say that they are never to be molested unnecessarily or injured but in self-defence. The dictates of common humanity will protect them so far. It should always be kept in view that, in taking a large tract of country for the necessary purposes of civilization, the original possessors will be deprived in a great degree of their hunting grounds, their only support, and thereby acquire a claim to such assistance and consideration as circumstances may enable the Company's servants to confer.

At the same time the well known character of the people must be kept in view and treachery must be guarded against. No person must suffer himself to be surprised at them at a disadvantage or without arms or to be seduced by any appearance of friendliness to trust himself in their power; the surest way to prevent bloodshed is to be always prepared to repel and punish aggression"[3].

As well as resentment at the loss of their hunting grounds there was a long established hostility, which had begun as early as Marion du Fresne's visit in 1774 when, through misunderstanding, a battle occurred between the French explorers and natives, one of whom was killed.

Nothing was done to improve matters by the gangs of sealers who settled on the islands of Bass Straits. Many of them had with them native women as wives and servants. These women were often used with great cruelty and treated more or less as slaves. Early in December, 1827, and again on December 31st of the same year, Curr records the first concerted attacks made by the natives on the shepherds of the Van Diemen's Land Company at Cape Grim.

Thomas John, a prisoner, was wounded in the thigh and in the second attack a strong party of natives appeared while Mr. Goldie was absent and, in the battle, six of them including their chief were killed and several severely wounded. "No one could feel more anxious than I have been to avoid any kind of contention with these people, and I have always enjoined the men to have no communication with them whatever, either friendly or otherwise, knowing that their friendly visits are only paid for the purpose of ascertaining our means of defence and weak points, and are generally the fore-runner of an attack"[4].

In the following October the storekeepers at Burleigh were attacked, speared and left for dead though he was "truly happy to say that every one of them escaped with his life to the Hampshire Hills and all are doing well"[5]. In despatches sent home during 1829, Curr reports further attacks by natives at Hampshire and Surrey Hills and mentions that the aborigines told the white people there that the previous attack at Burleigh was a reprisal for the killing of a black woman by two men who had been to the Mersey in search of bullocks. "Many of these natives having been at Western Marshes and other settled districts can speak a little English"[6].

Later, Curr was instructed by the Colonial Secretary to investigate a worse occurrence of a similar kind, of which he wrote:

"It is apparent that I cannot escape from the painful duty of investigating as I sincerely hoped I might have done"[7].

He unequivocally condemned Mr. Goldie's conduct. "It appears that Mr. Goldie and his party while searching for bullocks fell upon a small and unoffending party of women and children. One woman was killed and a woman and child captured".

The Crown Solicitor ruled that the act of shooting the woman, and by consequence the aiding and abetting of that act, was not an infraction of existing laws. The man who shot the woman in the pursuit was clear of murder, but the boy who struck her with the axe after she was disabled and

secured, supposing that to have been the mortal wound, was guilty of murder. Curr eomments, "As the affair is connected with Mr. Goldie's relinquishment of his situation I have another observation or two to offer to the Court.

"In the first letter I addressed to him expressing the disgust I felt upon the perusal of his statement of the transaction, I beg the Court to observe that I have not expressed an opinion that the aet was murder in the eyes of the law.

Had it been a party of white women there eannot be a doubt that the killing by Russell would have been murder in the whole.

And I am sure in that case the Solieitor-General would not have said after Mr Goldie had called his party out, and they had proeeeded together, and Mr. Goldie on horseback had put the women to the rout and driven one of them within reaeh of the gun of Russell, that Mr. Goldie was not present and that he was not aiding and abetting, although at the instant of time when the shot was fired Mr. Goldie and Russell should not have been within sight of eaeh other. If ever it should be held that Mr. Goldie was not present it would only ehange his position from principal to accessory . . . It is right also to observe that my view of the ease is sustained by Mr. Goldie's well known and often repeated deelaration, for whenever that state of the natives has been spoken of, and you may suppose it is a frequent subjeet of eonversation, Mr. Goldie has always professed the most sanguinary disposition towards them which I have as invariably opposed, saying, and I have said it to him a hundred times, that I would no more have their blood on my hands than that of white people"(9).

Evidenee of Curr's attempts to eome to a better understanding with the aborigines is shown in his eapture and kindly treatment of a native boy whom he calls "Thursday". "A youth, about 16 years of age, eame voluntarily to some of our people who were in a boat on the isthmus. I have put him on board the *Friendship* for seeurity where I intend him to remain until he knows at least enough of our language to be made to understand that we mean no hostility to his tribe"(10).

Two months later he writes of Thursday that he "behaves well exeept that he is incorrigibly lazy", that "he is extremely intelligent"(11) (a statement mueh at variance with his earlier expressed opinion) "and traetable and a great favourite with everyone", and that, when taken ashore at Emu Bay, he deseribed to Mr. Heaton how close he had been to the little ehildren and deseribed their having little baskets whieh they filled with stones. "Mrs Heaton said that must have been 12 months ago but it showed that Thursday had no wish to hurt them"(12).

By the end of the year Curr evidently decided that the time had eome to send Thursday baek to his own people and asked him did he wish to go. He replied, "Yes!" and "I told him he must make ready to go to them and bring them all with him to my house (Turanga) at Cireular Head, when they should all get bread and blankets and tobaeco, for he had beeome very fond of the latter artiele. In a few minutes he presented himself again, his jaeket lined with slices of damper and cold pudding as provisions for his journey, highly delighted apparently with the prospeet of seeing the people of his tribe. He took a fire stick in his hand and set forward to Robbins Island where he said they would be, and where I have no doubt he found them as I saw their fires soon after he left me.

Thursday was a great favourite with everyone, a good-hearted intelligent fellow who would laugh, talk, eat and drink the day through, but do no work. He has not since made his appearanee . . . and I now think he will spend the summer in the bush whilst kangaroo, birds, eggs and shellfish are plentiful and that he will eome to us again for shelter and food in the winter. He has met with nothing but good treatment here, and I think eannot have any other than friendly feelings towards us"(13).

A further example of his perseveranee in attempting to be on friendly terms with the aborigines is eontained in a despatch sent a little later after a party of natives had visited Woolnorth and stolen potatoes from the garden, attempting also to steal blankets from a store. "John MeKenzie, a shepherd, eame upon them, presented his musket and told them to lay them down, which they did immediately and ran away. Under existing eireumstances I consider his forbearanee an aet of humanity and shall reward him for it"(14) From the earliest days of the Company's establishment the loss of stock through the depredations of the aborigines was a constant source of anxiety.

Natives in the attaek at Cape Grim in December, 1827, killed 118 ewes by driving them into the sea and beating them with waddies.

Later despatches tell the same story. "I feel the consequences will be severe as regards our flocks, the shepherds being afraid to expose themselves in attending them. From the Race Course flocks in eharge of Ferguson, 200 ewes are missing and no traee of them can be found. Mr. Robson believes the natives have driven them in a body into one of the rivers and drowned them. Some working bullocks, a horse and a eolt have also been speared by them. I write to the Governor to represent these things and elaim protection"(15).

In spite of Curr's representations, replies from London continued to show an almost complete ignoranee of the situation.

A despatch from the Van Diemen's Land Company's offiee in 1829 reads, "The Court regrets the loss of the lives of so many of the natives and, though it is aware of the absolute neeessity to make them sensible of your strength so as to prevent aggression, it trusts that no measure will be neglected which may restore peace and gradually bring the natives into a state of eivilisation and usefulness"(16), and one written 12 years later shows no ehange of sentiment:—"We eannot help referring to our despateh to repeat our anxiety that every measure should be tried to eonciliate and civilize the natives to make them your friends instead of your enemies"(17).

The correspondenee of this period shows the Directors in England anxious that the Company's representatives in Van Diemen's Land should

establish friendship with the natives so that work there might progress smoothly and. possibly, the aborigines be used as labourers.

Curr, quite sure that military aid was necessary to check the depredations of the hostile tribes, never ceased his requests for Government protection.

This state of affairs continued until his resignation and, as late as 1841, he writes somewhat bitterly of the one-sided philanthropy which ignores the murder of shepherds in the Company's service and continues to urge conciliatory methods towards the "poor blacks". "Let no one say that my letters do not seem to contain a single phrase expresssive of commiseration for those unhappy people. I intentionally leave to gentlemen who sit secure in their easy chairs in Hobart Town all the honor and credit to be obtained by such one-sided philanthropy"[17].

And a despatch from Circular Head in November, 1841, reads, "The natives steadily continue their robberies in the district, I, as steadily, continue my vain and useless reports to the Government"[18].

James Gibson, who succeeded Edward Curr as chief agent, experienced the same difficulties. He reports the capture of a native woman at Woolnorth, and also that two native men and a women had attacked a man at Surrey Hills. "During my absence at Woolnorth the natives have made an attack and speared two or three valuable horses"[19].

On several occasions he records attacks made by the aborigines and both he and Curr make mention of Robinson's attempts at conciliation. "We have recently had a visit at the Hills and Circular Head from Mr. Robinson the gentleman who has been for some seven years endeavouring to conciliate and then to remove the aborigines. From Circular Head he and his party proceeded about three weeks since where he now is, and where he goes down to the West Coast in hopes of removing the tribes in that quarter, the only ones remaining at large, and who. though quiet at present, might be dangerous from the results of accidental collision with the whites"[20].

And about two months later, "Mr. G. A. Robinson has been so fortunate as to take a tribe of 23 at West Point and has placed them for the present at West Hunter Island. He expects in his progress towards Macquarie Harbour to meet with more"[21]. Two years later reference is again made to the further capture of the aborigines. "Mr. G. A. Robinson has succeeded in capturing another tribe of aborigines on the West Coast, consisting of 12 individuals. men, women and children, whom he has placed upon the *W. Hunter* until the *Edward* returns to Woolnorth when he proposes putting them on board that vessel to be conveyed to Launceston. He has returned down the West Coast in quest of more"[22].

Although the natives presented a problem to the white settlers, it is reasonable to assume that they were never very numerous. It has been a common practice to overestimate both the size and number of the aborigines. This is easily understood when we remember that their attacks were often made from behind a screen of trees and bushes and also the speed of their movements.

"It may be remembered that the natives used to appear with an astonishing celerity at the Hills after having been at Woolnorth and vice versa. Since my arrival here, one of them was captured at the latter place within about eight and 40 hours from the time when they took leave at Chilton . . . and there must be a direct track hitherto undiscovered by explorers"[23].

This journey took Henry Hellyer well over a week to accomplish, so that it is evident that the natives moving with speed over their well-known pathways, could easily give a false impression as to their numbers.

By the end of 1842 the aborigines had practically ceased from troubling the Company. "The natives who have hitherto been so troublesome were captured upon the 4th inst. near to the River Arthur, and I forwarded them yesterday to Launceston. This party consisted of a middle-aged male and female, two males about 18 to 20 years of age and three male children 3-7 years old.

This very desirable object has been accomplished by two men who are in the habit of frequenting the coasts of the islands for the purpose of catching seals and who are accompanied by two men, natives of New Holland, and it was principally through their instrumentality that they were so successful, and the moving cause of their exertions was the hope of getting the reward of £50 which I had ventured to offer on behalf of the Company if the aborigines were taken without violence and which I trust the Court will approve of my having paid them.

These were the only natives at large in the Colony"[24].

VI SETTLEMENT OF LANDS.

The joint instruetions issued to Curr and Adey on their departure from England bade them form their first establishment where there was a considerable area of land "adapted to the purposes of agriculture and especially for the rearing of large quantities of stock and sheep," and "they were to cultivate there as much land as would be necessary to supply the establishment with food and were strictly forbidden from engaging in any other pursuits until the grand and primary object of the Company should be accomplished"[1].

While the charter allowed the Company to employ its capital in cultivating and improving waste lands, it is quite clear from these instructions, as well as from Bathurst's letter to Arthur of 2nd June, 1825, that the acquisition of forest lands and the clearing of them was but a secondary consideration. What they desired were ample supplies of wool of the finest texture, and for this purpose an extensive area of good pasture land was indispensable. Curr and Adey sought for pasture land similar to the open, lightly timbered country of the eastern districts so eminently adapted for sheep. From information gleaned in Hobart Town soon after their arrival, they thought there would be little difficulty in finding a suitable area in the district

west of Port Sorell. But, as we have seen, Arthur was opposed to any grant so close to the settled districts, and was determined to exert all his efforts to prevent it.

As the situation of the lands was to be at a distance from roads and remote from settlement, ships must convey men and goods from place to place ;the grant must include a good and secure port. Some difficulty was experienced in obtaining vessels, but eventually Curr purchased at Hobart the cutter *Ellen*, of 22 tons, the schooner *Nelson*, of 13 tons, and a whaleboat; a useful and serviceable fleet, though the *Ellen* was a slow sailer.

The general order, issued to all officers immediately before exploration began, laid particular stress on the need of a safe and sheltered harbour [2].

The *Nelson* was short lived. In April, 1827, she sailed for Hunter Island to pick up a cargo of shells for lime, but failed to return. The whaleboat, sent off in search of her, found that she had been driven ashore by an easterly gale and badly damaged, rescued the crew and brought them to Circular Head. It was decided to repair the wreck. A longboat, hired in Launceston for the purpose, was fitted out and set sail for Circular Head with eight men aboard. Some days later a few articles belonging to the crew came ashore and the worst was feared. Once more the whaleboat set off and near Perkins Island, a few hours' sail from Circular Head, sighted the longboat bottom up. A careful search revealed no signs of the crew, nor were they ever heard of again. The whaleboat continued her voyage to Hunter Island only to find that by this time the *Nelson* had become a total wreck and was fast breaking up. To replace her Curr bought the cutter *Fanny*.

On the 22nd April the Company's officers entered for the first time the district that they considered available to them for selection. Two horse-drawn carts surmounted with tilts carried their equipment, but proved most unsuitable for penetrating the dense forest. They were soon abandoned in favour of light tents and packhorses. Although the winter was exceptionally cold and stormy they pushed on with vigour, but searched in vain for the large tract of land suitable for sheep farming which they confidently expected to find.

From reports of the exploring parties and from his own observations, Curr was now convinced that the Company's lands were not likely to be in a compact form but must, if 250,000 acres of useful land was to be received, consist of a number of small isolated tracts between which, by reason of the rugged nature of the intervening country, communication would be difficult and adequate supervision impossible. In consequence of this he suggested that a start should be made with ten farms each of from 2000 to 5000 acres in extent, and in the charge of a bailiff skilled in agriculture. A homestead should be erected on each and an adequate supply of implements for working the farm installed. As livestock, he suggested half a dozen milch cows, a brood mare or two and 300 ewes. On each farm there should go two or three permanent labourers, and a shepherd, although a number of additional labourers would be temporarily required to establish the farm. The farm would be fully stocked by the progeny of the 300 sheep, and assistant shepherds should be appointed as required. Each bailiff would cultivate enough ground to provide his own needs and, if carriage were convenient, for export. When the crops were taken off, permanent pastures should be laid down.

When the stock increased to such an extent as to be more than the farm could carry, excess should be used to establish similar farms. A start should be made near the residence of the superintendent which would be the principal homestead. Here the stud sheep would be kept. In order that the system might be corrected or a new system installed, the engagement of all bailiffs, no matter when appointed, should terminate simultaneously in 1837.

He strongly advocated horse breeding, reporting "let the Company secure a name for its horses and no kind of stock will be so sure of producing ready money and large prices." Grain for export to New South Wales should be grown as a means of paying for the clearing of the ground which, when the crop was taken off, could be sown down with artificial grasses [3].

Such a system meant peacocking on a large scale and would in effect have locked up almost all the good land in the north-west district from Port Sorell to Cape Grim, or at least between Cape Grim and the Mersey.

The immediate problem was the choice of a site suitable for the first settlement. Not only was the *Tranmere* with labourers, stores, and livestock, hourly expected, but existing current expenses at a moderate calculation absorbed £30 a day [4]. Adey's report of his visit to Circular Head in July had been most favourable [5].

Goldie and Fossey made an examination in August and found much good land, in many places quite clear and in others thinly timbered. They judged that there would be "4000 acres of good clear land and thought that a considerable quantity more could be made clear at a very moderate expense" [6].

Further confirmation was to come from a local source. Curr sought an opinion from C. R. Hardwicke, a well known farmer near Launceston who had visited the Far North-West, and received a favourable account of the district [7].

Nowhere else on the coast was there anything comparable. Even when in England Curr had been predisposed to the district. "My mind at that time always ran upon Circular Head as the most likely situation from all we knew of it," he wrote [8]. All that he learned from the exploring parties confirmed the belief, and in September he and Adey decided to send the *Tranmere* to Circular Head [9]. He knew that Circular Head could not provide an area sufficient for their wants, but it possessed all the attributes for a principal homestead. The division of the grant into separate portions was a matter for future negotiation.

On the 29th September the brig *Tranmere* reached George Town and, on receipt of the news, Curr hurried north. He was delighted with the condition of the stock and made preparations for the immediate establishment of the settlement.

Adey was recalled from the Mersey in the *Ellen* and future arrangements fully discussed, for as Superintendent of the Company's land he had charge of disembarkation of stock and stores and the well-being of the infant settlement.

On 21st October Goldie and Fossey left in one of the *Tranmere*'s boats as an advance party to erect a few tents and make some preparation for the reception of stock. On their way they called at the Mersey and picked up Hellyer, leaving Lorymer to look after the horses and working bullocks. Three days later the *Tranmere* sailed with a fair wind and in the afternoon of the 24th October anchored off Circular Head.

Bad weather set in the same evening. The wind veered to the south-west, and fierce squalls swept across the bay at frequent intervals. Captain Wales had cautiously kept well out and, as the wind was off-shore, the brig was in no danger but there was so big a sea running that it was impossible to discharge any of the cargo or stock. "During the six months that I have been beating about from place to place on the coast," wrote Adey. "I have experienced a great deal of very bad weather, but all has been surpassed by that which set in on the very evening of our arrival here" [10]. The wind blew itself out in the night of the 26th and on the 27th the *Tranmere* lowered her boats and began to discharge her livestock and cargo. By the 29th all the livestock had been safely landed and housed and all hands were busy constructing a store and huts.

Then bad weather set in again. The wind, which had for a few days been blowing from the east, the most dreaded quarter on the coast, settled into a gale on the 1st November and brought with it torrents of rain. Soon a great sea was running and the *Tranmere*, lying at a single anchor, was in grave danger of being driven ashore. At the height of the storm the chain cable suddenly parted. Immediately a second anchor was let go and the brig was fortunate enough to ride out the remainder of the gale in safety. Recovering his anchor when the sea abated the captain at once returned to the Tamar to get the broken chain repaired, "considering that the ship was not safe at Circular Head with only one cable" [11].

On his return he called at the Mersey, picked up the horses and working bullocks and landed them safely at the young settlement. All appreciated their arrival for hitherto materials could be transported only by manual labour; wherever a weight had to be lifted men lifted it; everything depended on the power of human muscle.

The Company now defined its activities to the district west of the Mersey; the Port Sorell district had been abandoned.

The *Tranmere* brought indented servants from Roxburgh, Berwick and Yorkshire, sheep, cattle, provisions, clothing, agricultural implements, tools and some building material to a new land. Sheds and fences had to be built for the livestock, houses and huts for the indented and assigned servants, a commodious building for the stores, and dwellings for the Company's officers. Many articles were in short supply. These and quantities of foodstuff had to be obtained in the island.

Of the indented servants eight were agricultural labourers, three were shepherds and four were artisans, a mason, a carpenter, a millwright and a blacksmith. The 25 assigned servants were all labourers. The work of establishing the settlement with so few mechanics was slow and laborious. Except for the frame and fittings of the house intended for Adey, a quantity of deal flooring and skirting boards, and a little sawn timber and a few shingles brought from the Tamar, all the timber had to be split or sawn from the bush. Skilled through the mechanics might be they had no experience of such operations as they were now called upon to perform.

Hellyer, upon whom, as architect and chief surveyor, most of the responsibility of building rested, had to learn by experience the way to build turf huts, log and weatherboard houses [12]. Added to this neither Adey nor Goldie were good managers of men. Accommodation was complicated by the presence of four women, wives of indented servants. One of these, herself an indented servant and with a family of three children, was entirely satisfactory and Curr spoke highly of her, but the other three were a source of trouble, being "useless, drunken and dissolute" [13]. They were under no obligation to the Company which had, however, given them a free passage.

Curr regarded the indented servants with much satisfaction, although he realised there was a likelihood that they would be dissatisfied when they found that "other mechanics of the same kind hired here are paid higher wages than themselves" [14]. Some difficulty was experienced in getting the men to carry out work which was not exactly covered by the terms of their agreement. To prevent a recurrence of this he asked that, in all future indentures, additional clauses be inserted—one that all must "conform to the rules laid down for the general management of persons on the Company's lands," and another that every individual be engaged, not only for a specified trade, but "for any other business or duty not incomparable with his profession" [15].

For a while berths on the *Tranmere* were still available, but in mid-January she sailed for the Tamar to bring milch cows, additional working bullocks, improved sheep and sheep for food to the new settlement. In February, having completed her contract, she took her departure.

Trees were plentiful enough at Circular Head but they were unsuitable for converting into building material. A search revealed that about eight miles to the south-east, quite near the coast between Black and Detention Rivers, was a thick forest of fine timber which split freely. Here sawpits were established and a working gang set about splitting palings and shingles. A bed of good clay was found close by and brickmaking began. From daylight to dark the Company's fleet plied backwards and forwards with material for the builders for, in spite of the delays caused by double handling, water transport was the most expeditious and practical means of bringing material from Sawyer's Bay and Brickmaker's Bay.

Hellyer busied himself constructing a jetty to facilitate the handling of cargoes. On the advice of Captain Wales he built in quite shallow water,

seeking as mueh shelter as possible from the easterlies, and made sueh good progress that the *Tranmere* with a eargo of improved sheep berthed there in mid-February. On the same trip eame Alexander MeNab, a resident surgeon. The want of a surgeon had eaused mueh anxiety to Curr. In vain he had advertised. So it was a great relief when at length he offered the position to MeNab, the assistant surgeon at George Town, who aeeepted his offer.

Meanwhile Goldie put his ploughmen to work, for the young settlement had to grow most of its own food, and by the end of April about 100 aeres of land had been broken up. The native grasses were harvested and stored for hay.

Goldie was an exeellent farmer but had no experienee of such a task as eonfronted him, the making a farm from virgin bush. The want of loeal knowledge troubled Curr. He suggested that James Gordon, a sueeessful farmer with years of experienee in New South Wales and Van Diemen's Land, should visit Cireular Head and give them the benefit of his knowledge. It was never intended that he should interfer with Goldie in any way. His adviee would have been invaluable to Curr, his manner sueh that none eould have found oeeasion for offenee. Goldie regarded this visit as a want of eonfidenee and expressed his resentment so vehemently to Adey that Curr abandoned the idea.

In the first few weeks after its foundation the establishment eame near to dissolution. The energy whieh marked the beginning soon waned. Offieers and men alike beeame dispirited, the result of Adey's eonduet. The magnitude of the task overwhelmed him and he lost heart. He had no faith in the enterprise and 'was in the habit of observing on all oeeasions that he did not see how the undertaking was ever to pay expenses and intimating daily that it was probable that it would be abandoned" (65). Even Hellyer eonfessed that "we hear these things until we have no heart to do anything and the men know it all" (67). As mentioned before, the fraeas in Deeember, 1826, was mainly the eulmination of the general desponderiey.

Curr's arrival in January dispelled the prevailing gloom. His vitality and indomitable spirit admitted of no defeat, restored the failing eourage and enabled the little eommunity to overeome the countless diseouragements, hardships and diffieulties whieh eonfronted it. From now on he gave mueh personal supervision to the establishment, dividing his time between Hobart and the North-West Coast. When Adey resigned as superintendent, Curr deeided to move to Cireular Head as soon as the eight-roomed weatherboard and shingled house, in course of ereetion, eould be finished. It was large enough to aeeommodate his family of eight and the servants. On the 30th November, little more than twelve months from the date of the beginning of the settlement, he arrived with his family from Hobart in the sehooner *Flamingo*, and went into permanent residenee at Highfield.

In the midst of all the bustle of settling in, Hellyer brought exeiting news. He had at last found an extent of pasture land suffieient for the Company's real objeet, the produetion of fine wool on an extensive seale. The diseovery was opportune for it had now beeome evident that there was insuffieient good land anywhere in the vieinty of Cape Grim and Cireular Head. Curr and Adey, in full agreement, resolved to make a settlement at the Hampshire Hills in the next spring.

Mueh had to be done before this was possible. As the hills lay well inland and were eut off from eommunieation with both Cireular Head and the settled distriets, roads must be eonstrueted through virgin forest, a serviceable port diseovered and a eonvenient station found for keeping the improved sheep until the new lands should be oeeupied.

In April, William Lyttleton lent a farm of 2000 aeres, situated near Quamby Bluff. Seven months later the Company leased from G. W. Barnard a farm of 1000 aeres on the east bank of the Tamar, five miles from Launeeston. Its paddoeks and its aeeessibility to the Company's vessels made this a useful depot espeeially for the shipment of stoek to and from Cireular Head. It also boasted a neat homestead, a well-kept garden and a stable. By November the Company had a floek of 1900 improved sheep at the Quamby establishment and Reeve was put in eharge. Purehases were then suspended until a road eould be opened from the settled distriets to the Hills. In 1829 Curr resumed buying, and on June 26th leased 3000 aeres from the Governnient three miles beyond Westbury. Known as the Red Hill Establishment, it bordered on Lyttleton's farm, so that floeks of the Van Diemen's Land Company grazed a large part of The Retreat, that fertile moderately wooded distriet between Westbury and the ford over the Meander. The only dwelling was a hut.

When news of the Hampshire and Surrey Hills reaehed him, Curr hurried to Cireular Head with the intention of turning the diseovery to aeeount as speedily as possible. On the 19th April, aeeompanied by Hellyer, he examined the Table Cape River (heneeforth ealled the Inglis) and the Emu River "to aseertain their eapabilities as harbours in eonnection with the eountry lately diseovered" (68). Leaving Hellyer eneamped at the Emu he retnrned to Hobart but left instructions that he should survey and measure that river "in order to open up a road to its entranee to the sea" (69).

Before any works of importanee were begun on the eoast, Curr thought it advisable that "the opinion of a eompetent person should be obtained upon the different plaees between Table Cape and Round Hill point whieh appear eapable of being used as or eonverted into a port" (70). At his suggestion the Couneil of Management engaged G. W. Barnard, a retired naval lieutenant, who had been reeently employed by the Government to examine King Island.

On the 26th September, the survey of the eoastline began, Barnard and Curr setting out from Cireular Head in the whaleboat. Emu Bay, they found, was eonsiderably more sheltered than Table Cape Bay, though both were open roadsteads, and Barnard eonsidered that without an expensive pier, neither was eligible for use by large vessels; if harbour works were to be eonstrueted, Table Cape Bay was the more suitable. The Inglis River would in most weathers allow small eraft to enter and, when in, they would lie in perfeet shelter. With little expense a good wharf eould

be made there. No such facilities existed at the Emu River where the bar dried long before low water, so that at high water with a 12 feet tide there was only seven feet on the bar. Entrance was always dangerous. The ever-present risk was brought home to the survey party when the whaleboat swamped in trying to make its way in.

But the survey had little more than academic value, as some four months earlier Hellyer had begun the road to the Hills. The Company was committed to Emu Bay. On receipt of Curr's instructions, he made an exhaustive search of both banks of the Emu River and within a fortnight reached a decision. On the 13th May he wrote to Adey for three additional men and tools of all sorts to make a road from Emu Bay. This went beyond the instruction of the 28th April and Adey hesitated. When "Hellyer peremptorily insisted that it should be done"[21] he gave his permission.

There was a strong local tradition that Hellyer's first camp stood on the right bank some distance back from the river close to a stream which flows from the hills behind Wivenhoe. For nearly fifty years the large tree which served the district as a bridge was pointed out as that which his men felled across the Emu to reach their work.

While Barnard continued the survey of Emu Bay and investigated the possibilities of a landing place, Curr visited the road under construction and, accompanied by Goldie and Hellyer, visited the Hampshire and Surrey Hills, making an intensive survey in spite of severe weather which prevented an ascent of St. Valentine's Peak.

The first eight miles of the road were through a eucalypt forest, the like of which Curr had never imagined, much less seen. "I believe," he wrote to Arthur, "it will be admitted that a denser forest does not exist in the whole world." The giant eucalypts were succeeded by a beech forest (the Tasmanian myrtle) and continued throughout to the Hampshire Hills. These beeches ranged from 100 to 150 feet in height and many of them of mighty girth, some of them 45 feet in circumference at four feet from the ground. At intervals in the midst of this dense forest was a number of glades, or plains as they are termed in Tasmania, not because they are level but because they are free from trees. In size they varied from five to six hundred acres, and to those through which Hellyer constructed his road he gave distinguished names. Of these Ridgley and Highelere have survived.

Curr made his way through tangled scrub and dense forest to the Hampshire and Surrey Hills, only to have his hopes dashed and his expectations destroyed. He thought to gaze upon a district comparable with that of the older settlements such as the Midlands, but saw instead an extent of country that could not be considered even second-rate pasture, nor was what he saw good arable land. Unfavourable as his first impression was, it really overrated the capabilities of the district as after-years were to prove.

On his return to the coast he gave the necessary instructions for works to be carried on there: a small wooden jetty under the lee of Blackman's Point, a wooden store close by, a stable and a few huts. The waves surge along the rocks that form the headland with great violence so Curr would have the jetty present little surface or resistance to the sea and allow the water to wash clean through it. "I hope we shall be able to discharge a cargo very quickly and with safety in moderate weather," he concluded.

The bay was free from all danger and afforded good anchorage for sailing ships, except in easterly weather. They dared not, however, approach the shore too closely.

At high water the whaleboat landed or shipped cargo from the jetty, and at other times from a large flat rock called Black Jack.

On 23rd February, 1828, Hellyer reported that the road was finished. A mere track, cleared of timber to a breadth of from 12 to 20 feet, it climbed steeply from the coast for two miles and in the course of twenty miles reached an altitude of 1500 feet. Curr described it as the worst road that imagination could picture and realised that it could not be improved except at very great cost: "The soil of the forest is deep and strong clay which cuts up into deep and very tenacious ruts except during wet weather, that is to say the whole winter and spring, and then the road is a canal of mud of from 12 to 18 in. in depth" [22].

Backhouse, who traversed the road five years after its completion writes just as unfavourably. "During about four months of the year provisions are dragged over this road in bullock carts for the supply of the population in the Hampshire and Surrey Hills; for the remaining part of the year the provisions are transported on pack horses; the road is always damp, being formed of vegetable and red loam shaded continuously from the sun and air by the forest; in summer, bullocks often perish upon it, though two days are taken for the journey of twenty miles and a relay of bullocks is provided half-way. The horses are often up to the saddle girths in mire for considerable distances. The forest could be a good station for a penal road party: it would take 100 men several years to form a good road through it and to clear the land for 100 yards on each side which would be necessary to keep the road dry. The situation would afford seclusion equal to a penal settlement and with a small degree of precaution, escape would be extremely difficult. A man would be more at a loss to find his way in these forests if without a compass and out of sight of a road than a mariner in the midst of the Atlantic" [23].

To the few compelled to use this track, the carefully erected mileboards seemed bitterly ironic.

The first road considered by the agents of the Company was that from the settled districts to the Hills. On April 3rd, Curr instructed Fossey to seek a practicable route from the Western Marshes to Hellyer's newly-discovered country and make his way from there to the coast at Table Cape. "Although," he wrote, "I am of the opinion that the best route would be found by way of the Clyde and the Shannon, yet as a road through the Western Marshes is so much shorter where you have your supplies and as a comparatively small portion of it remains unexplored, it seems you should attempt this in the first instance" [24]. He had no knowledge of the back country and

based his opinion on Jorgensen's statement that, in spite of inclement weather and impeded by snow, he had in four days walked from the Great Lake to the foot of the "Peak like a Volcano," traversing vast plains almost the whole distance" (24). Curr decided to investigate in person the possibility of such a road, but Adey's resignation as resident superintendent of the lands compelled him to abandon the idea. The task was then delegated to Fossey but was never attempted. Fossey's exploratory survey in April and his own visits to the inland districts convinced Curr that little reliance could be placed on the information supplied by Jorgensen. A road from the Lakes to the Hills was impossible.

The directors took the opportunity afforded by the visit of William Kermode, a prominent Van Diemen's Land breeder, to question him about the improvement of sheep. He told them that by purchasing the finest Merino rams he could procure and using them with the choicest native ewes, he had, in four crosses, succeeding in obtaining a fleece as fine as that of the original rams (25). In view of this, Curr was instructed to invest as much as he could in creating a flock by purchases in the island.

This fitted in well with his own ideas. In fact, he had already counselled such a plan. The time was opportune because the low prices received for their wool in England had damped the hopes of many an enterprising breeder. "I do not trust that I shall be so circumstanced within a very short time as to be enabled to take advantage of the depression," he wrote. "I hope at the same time that I shall continue to make the necessary purchases without rising the price of stock in the manner, or to the degree which the Australian Company's agents most inopportunely for themselves have done in New South Wales" (26).

From Thomas Archer, of Woolmers, and his brother Joseph, Adey bought 1500 highly-improved sheep at from 25s. to 30s. a head. The deal was gratifying because by careful selection the Archer Brothers had the start by at least one season of all other persons in the colony.

These, with the livestock brought from England in the *Tranmere*—46 Cotswold sheep (8 rams and 38 ewes), two stallions (a Suffolk and a Cleveland), and four Teeswater or Durham cattle (2 bulls and 2 cows), formed the nucleus of the Company's flocks and herds.

[Here the manuscript ends. The remainder of the story is to be found in the notebooks, and mass of accumulated material now in the archives of the library at the University of Tasmania, Hobart.

The appended conclusion gives a brief outline of some of the material contained therein—W.M.M.]

CONCLUSION.

by K. M. Dallas.

The manuscript notebooks from which this paper evolved have been deposited in the University of Tasmania Library and, until the Company's records are available to historians, will prove valuable to anyone studying this period of Australian history. They cover the period 1825-1859, except for two letters of 1871 referring to a subscription by the Manager of the Company to the Mt. Bischoff Mining Company. It is ironical that this rich tin mine should have lain just outside the boundaries fixed by the Government to the Company's lands. Ironical, but also inherent in their purpose, which was to select open pastoral land, not forested mountains.

Some may see the irony of fate or the clash of incompatible characters in the long chronicle of frustration and failure, but it is more realistic to recognise that the failure was inherent in the conception of the Company. It was an anachronism. It was a repetition, in Australian conditions, of a method of colonial exploitation which had flourished in America in the previous two hundred years and had been destroyed by the Americans in their struggle for independence. Governor Arthur was, very discreetly, the leader of a group of Tasmanian colonists who saw themselves as the landed aristocracy. The Company's Charter was drafted at a time when the great East India Company was dying; when its last remaining trade monopoly was being lost piecemeal to the new men on the spot, the "country" traders; hence its charter forbade it to engage in trade, in banking and in whaling, that "most profitable of colonial ventures," as Curr described it.

The notebooks afford valuable detail on the contemporary relations between Master and Servant. The Directors enjoined strict religious observance, requiring that records of attendance at worship be included in reports. Bibles were provided, octavo for the officers and duodecimo for other ranks. The virtues of diligence and sobriety and "zeal for the Company's interests" were extolled and should be placed alongside Curr's strictures on the Indenture system—that "seven years' slavery" which, in the contemporary British and French sugar colonies, was a legal fiction which prolonged actual slavery long after the legal fiction of its abolition. Curr quoted frankly to the Directors the strictures of the Colonial Secretary, Montagu, on the Company's methods of hiring indentured workers. "Kidnapping" and "methods of the recruiting sergeant" were common to indentured systems everywhere.

The Company operated when these systems of obtaining labour were being destroyed by the new social forces. Curr's preference for convicts is repeatedly expressed, for reasons of skill and trustworthiness, as well as for the absence of crime until the corruption of the Probation System supervened. His letters on labour problems in this remote outpost of the Colony bring out the essence of the transportation system—the colonial demand for labour being the dynamic force to which the penal system of the mother country was adapted. He urged the Directors to press for larger supplies of convicts. The Directors' pious hope that the aborigines might be tamed and made useful also expresses the mercantilist attitude to undeveloped lands.

Meston has written for us the most significant part of the Company's story. The involved series of negotiations to escape from the limitations imposed by its Charter has been thoroughly

analysed and explained. Even before that was over its hopes of great gain or important influence were ended, and the suceeeding ehroniele would have been one of small expedients tried in the seareh for mere survival. The Chartered Land Company belongs to the Dinosaur Age of Capitalism. It rested on privilege and viee-regal power, and its size and legal powers foredoomed it in an age when individual capitalism was emerging. In the very year of the Company's foundation occurred the first of the true financial crises of the nineteenth century. Each erisis was marked by the fall of old-style firms and the rise of new men and new forms of business.

The restrietions of its charter reflect the suspieion of the new capitalism towards corporations enjoying special privileges. The injunetion against banking, trading and whaling must be seen as specifie safeguards for British interests in these fields. The granting of land outside the settled areas was more for the freedom of individual emigrants than to foster development. Ignoranee of the quality of the land and of the elimate is a main cause of the Company's failure, and the only one not attributable to eommercial jealousy. Had the area proved as suitable for sheep as the eastern parts of Van Diemens' Land it is certain that strife between the Company and private speculators would have followed. If it had been permitted to select land in the Port Phillip region it is eertain that it would have been harassed by continual attacks, both through official channels and by individual squatters. The refusal of eolonial and British authorities to recognise the claims of the Port Phillip Assoeiation arose from the "publie" opposition to exclusive privileges.

Thus the project was foredoomed in the sense that the growing of fine wool on a large seale was impossible in the regions to whieh it was confined. The breeding of stud sheep, cattle and horses was of great importanee to the eolonies. The notebooks reeord the extensive sales of these, not only in Van Diemen's Land, but also in Port Phillip, South Australia and West Australia, but this buttered no parsnips. In this as in the matter of land clearing, roads and farming experiments, the eapital of the Company and the skill of its offieers aided the establishment of later generations of individual farmers, but this was not part of the Company's intention. Yet it was inherent in the conditions of the time that the small man should milk the Company. Its policy of fixed produce priees after 1842 enabled its tenants to survive the lean years at the expense of the proprietors until, by 1850, many were in arrears with calls, and some were in favour of liquidation. The whale was stranded on the North-West Coast and the small fish were living on the carcase.

The remote eontrol was another inherent defeet. Repeatedly we find Curr's suggestions ignored, or amended at first and adopted when the chance of profit from them had passed. Failure to heed his warnings against rapid expansion of tenant farming led the Direetors into the ruinous fixed price policy whieh his suceessor had to adopt. Their greatest failure at the Surrey Hills was due to their insistenee that fine-woolled sheep be stationed here in large numbers. The ehange to eoarse-woolled sheep was warranted, but failed also, and ever sinee then those bleak uplands have served for eattle raising only.

Like its greater and more-favoured contemporary, the Australian Agricultural Company, it was formed to take advantage of eheap land, cheap forced labour, and an expanding British market for fine wool. Also both of them were compelled to seleet land in areas remote from settlement. The Van Diemen's Land Company had no advantage to eompare with the monopoly of coal mining which its eounterpart enjoyed for twenty-five years.

Both were stinted on supplies of convicts and found that they could not prevent their free labourers from migrating to more settled parts. The Van Diemen's Land Company was too late in every venture it pursued. The opening of Port Phillip diverted capital and labour from Tasmania, and eompelled it to ship its stud stock to that market, but the ending of the Land Boom eaused it to resort to tenant farming at a time when rich tenants with eapital were not fortheoming.

It persevered with farming during the years of low priees, only to abandon this for leasing and selling land, thus failing to profit from the priee boom of the Gold Rush years.

The notebooks show material whieh suggests a later history of eontinual frustration of the hopes of absentee investors. They do not extend into the years of Tasmanian prosperity based en mining of gold and base metals.

This brief reference to their eontents is added in the hepe that other students may profit from the work Meston had to leave ineomplete.

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The eo-operation of the Van Diemen's Land Company in London and Burnie, the State Arehives and the Mitchell Library as gratefully aeknowledged.

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(31) Memorandum, -/5/1824. Bonwick transscripts.
(32) First Annual Report, 1826. See Bischoff: Sketch of Van Diemen's Land, 1832, p. 111.
(33) Henry Hughes, Blackwell Hall factor and a foundation proprietor of the V.D.L. Company, in evidence before a Committee of th House of Lords, 1828. Quoted: Bischoff: History of the Wool and Worsted Manufacturers, Vol. II., p. 183.
(34) Minutes of Court, 14 May, 1824.
(35) Application to Bathurst, 22 May, 1824. Curr who did not join the Company until 1825, in a letter to Bathurst of 22 May, 1825, cites the date erroneously as 21 May, 1824.
(36) Minutes of Court, 14 May, 1824.
(37) Minutes as to situation of land from Mr. Ingle and Captain Briggs. Encl. with Bischoff-Bathurst, 13 July, 1824.
(38) Minutes of Court, 7 July, 1824.
(39) Application to Bathurst, 13 July, 1824.
(40) Bischoff-Bathurst, 13 July, 1824.
(41) Pearse-Horton, 30 Dec., 1824, and 22 Feb., 1825.
(42) Minutes of Court, 1 Dec., 1824.
(43) Minutes of Court, 18 Dec., 1824.
(44) Curr: Account of the Colony of Van Diemen's Land principally designed for the use of Emigrants. London, 1824.
(45) Now called Melton Mowbray.
(46) First Annual Report in M.S. in V.D.L. Office, London.
(47) Minutes of Court, 2 March, 1825.
(48) Pearse-Horton, 30 Dec., 1824.
(49) Sorell-Bathurst, 29 Jan., 1825.
(50) Sorell-Horton, 29 Jan., 1825.
(51) *Ibid.*
(52) First Annual Report. See Bischoff: Sketch of V.D.L., 1832, p. 100.
(53) *Ibid.*
(54) Pearse-Horton, 11 Feb., 1825.
(55) *Ibid.*
(56) Minutes of Court, 25 Feb., 1825, and John Smith-Pearse, 24 Feb., 1825.
(57) Pearse-John Smith, 25 Feb., 1825.
(58) Pearse-Bathurst, 2 Mar., 1825.
(59) Pearse-Bathurst, 5 March, 1825.
(60) Memorial to Bathurst by James Hall, R.N., James Dixon, Junr., Thomas Kent, Charles William Murray, 12 Mar., 1825.
(61) Curr-Bathurst, 28 Mar., 1825.
(62) Horton-Curr, 14 and 25 April ,1825; Curr-Horton, 15 and 30 April, 1825.
(63) Curr-Bathurst, 22 Mar., 1825.
(64) Pearse-Horton, 22 Mar., 1825.
(65) Pearse-Horton, 11 Feb., 1825, and Curr-Bathurst, 22 Mar., 1825.
(66) Sorell-Bathurst, 2 April, 1825, ordered to be printed, 11 May, 1825, together with Curr-Bathurst, 22 Mar., 1825, Bathurst-Curr, 15 April, 1825, and Curr-Bathurst, 18 April, 1825.
(67) Sorell-Bathurst, 2 April, 1825.
(68) Bathurst-Curr, 15 April, 1825.
(69) Sorell-Horton, 23 April, 1825.
(70) Arthur-Hay, 22 April, 1826.
(71) The memo. encl. in Bathurst-Arthur, 6-7/1825, sets out that Horton was given charge of the West India Islands, Demerara, Berbice, Honduras, Bahamas, North American colonies, while Hay had the East Indies, Ceylon, Mauritius, Cape of Good Hope, Malta, Ionian Isles, Barbary States, Gibraltar, Sierra Leone, Gold Coast, Heligoland, New South Wales and Van Diemen's Land.
(72) First Annual Report quoted by Bischoff, p. 100 *et seq.*
(73) Curr-Bathurst, 1 Sept., 1825.
(74) Bathurst-Arthur, 14 Sept., 1825.
(75) Curr-Horton, 30 June, 1825; Stephen-Horton, 7 July, 1825; Sorell-Barnard, 4 Aug., 1825, in a private letter (Bonwick transcripts).
(76) Curr-Bathurst, 31 Aug., 1825.
(77) Bathurst-Arthur, 12 Sept., 1825.
(78) Van Diemen's Land was proclaimed independent of New South Wales by Governor Darling on 3 Dec., 1825, and a Legislative Council established.

II. LOCATION OF LAND.

(1) See p. 34.
(2) This paper contained the following:—
Curr-Bathurst, 23/3/1825; Sorell-Bathurst, 2/4/1825; Bathurst-Curr, 15/4/1825; Curr-Bathurst, 18/4/1825.
(3) Bathurst-Arthur, 2/6/1825.
(4) Curr-Inglis, 11/3/1826.
(5) Sorrell's letter of 2 April, 1825, p. 24.
(6) Curr-Inglis, 11 Mar., 1826.
(7) Montagu (Col. Sec.)—Curr, 8 Mar., 1826.
(8) Curr-Inglis, 11 Mar., 1826.
(9) Arthur-Bathurst, 4 April, 1826.
(10) Arthur-Pathurst, 1 Jun., 1825. Hist. Rec. Aust., Series III., &c., Vol., IV., p. 311.
(11) Arthur-Horton, 28 Oct., 1824. Hist, Rec. Aust., Series III., Vol. IV., p. 225.
(12) Arthur-Bathurst, 2 Jan., 1826.
(13) Arthur-Bathurst, 4 April, 1826.
(14) Arthur-Hay, 22 April, 1826.
(15) Hobart Town Gazette, 1 April, 1826.
(16) Late of the 83rd Regt. He was personally known to Lord St. Helens, who had recommended him to Bathurst.

(17) Hamilton (Acting Col. Sec.)—Curr, 28 June, 1826.
(18) Curr-Bathurst, 22 March, 1825: 31 Aug., 1825.
(19) Scott's Map, a chart of Van Diemen's Land from the best Authorities and from Actual Surveys and Measurements. Published 1824.
(20) Observations of the Land Commissioners on location, measurement and arrangements of the V.D.L. Co.'s Land. 11 April, 1828; and on enclosure in Arthur-Huskisson, 16 April, 1828. The owner of the run was Thomas C. Simpson, J.P.
(21) Curr's name for the Western River, now called Meander River.
(22) Curr-Inglis, 14 June, 1826.
(23) Bathurst-Arthur, 14 June, 1826.
(24) Curr-Bathurst, 14 June, 1826.
(25) Curr-Bathurst, 22 March, 1825.
(26) O.D., 14 June, 1826.
(27) Curr-Inglis, 14 June, 1826.
(28) Adey-Curr, 27 July, 1826.
(29) Curr-Inglis, 4 Sept., 1826.
(30) Adey-Curr, 15 Sept., 1826.
(31) Curr-Hamilton (Acting Co. Sec.), 30 Oct., 1826.
(32) Curr-Hamilton, Oct., 1826.
(33) Curr-Inglis, O.D. 34, 23 Nove., 1826.
(34) Curr-Inglis, *idem.*
(35) Curr-Inglis, *idem.*
(36) Curr-Arthur, 28 Nov., 1826.
(37) Minutes of Executive Council, 4 Jan., 1827.
(38) Curr-Inglis, 31 July, 1826.
(39) Curr-Inglis, 15 Nov., 1826.
(40) Hay-Arthur, 21 Mar., 1827.
(41) The Company was given one million acres in one continuous location but, as probably one quarter was of such a nature as not to be useful, they were required to pay quit rent on only three-quarters of a million acres.
(42) Arthur-Bathurst, 21 Mar., 1827.
(43) Arthur-Bathurst, 15 Nov., 1826.
(44) Curr-Inglis, 23 Nov., 1826.
(45) Curr-Inglis, 15 Nov., 1826, and Arthur-Bathurst, 15 Nov., 1826.
(46) This minute of the 1 Dec., 1826, was sent as an enclosure in Arthur-Bathurst, 13 Mar., 1827.
(47) Minutes of the Executive Council, 26 Dec., 1826.
(48) Hellyer's Report, of 13 Mar., 1827, printed in full in Bischoff's "Sketch of the History of Van Diemen's Land," London, 1832.
(49) Fossey's Report of 26 May, 1827, printed in Bischoff's "Sketch of the History of Van Diemen's Land."
(50) Curr-Inglis, 17 April, 1827.
(51) Inglis-Curr, 24 Jan., 1827.
(52) Curr-Bathurst, 30 Aug., 1825.
(53) Bathurst-Inglis, 5 Jan., 1827.
(54) Bathurst-Arthur, 7 Jan., 1827.
(55) Court of Directors-Curr, 18 May, 1827.
(56) Inglis-Curr, 22 Mar., 1827.
(57) Bathurst-Arthur, 18 April, 1827, and, for this affirmation, see the application to Bathurst of 4 Feb., 1825.
(58) Court of Directors-Curr, 18 May, 1827.
(59) Curr-Inglis, 19 May, 1827.
(60) Lady Franklin to Miss Simpkinson, 12 Oct., 1841, quoting a remark of Dr. Turnbull.
(61) Court of Directors-Curr, 16 Aug., 1827.
(62) Inglis-Hay, 5 Sept., 1827.
(63) Inglis-Hay, 5 Sept., 1827.
(64) *Idem.*
(65) Huskisson-Inglis, 8 Oct., 1827.
(66) Huskisson-Inglis, 8 Oct., 1827.
(67) Arthur-Huskisson, 16 April, 1828.
(68) Wedge's Report of 1828.
(69) Arthur-Huskisson and enclosures, 16 April, 1828.
(70) The Blackwood.
(72) Wedge's Report. Printed as a Parliamentary Paper, No. 21, Legislative Council, 1861.
(73) Arthur-Huskisson, 16 April, 1828.
(74) Curr-Inglis, 16 May, 1828.
(75) Court of Directors-Curr, 15 Dec., 1827.
(76) Minutes of the agreement are in Huskisson-Arthur, 1 Jan., 1828.
(77) Directors-Curr, 4 Mar., 1829.
(78) Enclosure, Curr-Directors, 10 Nov., 1827.
(79) Curr-Directors, 10 Nov., 1827.
(79) Curr-Directors, 10 Nov., 1827.
(80) The term "plain" is used in Tasmania to signify any grassy expanse of country naturally free of trees.
(81) Curr-Directors, 14 Mar., 1829.
(82) *Mesomelaena sphaerocephala.*
(83) Wedge's Report of 1828.
(84) Curr-Directors, 13 Feb., 1829.
(85) Burnett-Curr, 30 Jan., 1829.
(86) Arthur-Murray, 31 Jan., 1829.
(87) Hobart Town Courier, 7 Feb., 1829.
(88) Curr-Directors, 14 Mar., 1829.
(89) Curr-Directors, 23 Oct., 1829.
(90) Curr-Directors, 27 May, 1829.
(91) Curr-Directors, 20 Aug., 1829.
(92) Curr-Col. Sec., 23 Oct., 1829.
(93) Curr-Directors, 23 Oct., 1829.
(94) Memo.: Frankland-Col. Sec., 29 Dec., 1829.
(95) Arthur-Twiss, 9 Nov., 1829.
(96) Conference held 30 April, 1830.
(97) Murray-Arthur, 27 May, 1830.
(98) Pearce-Hay, 25 May, 1830.
(99) Curr-Directors, 22 Nov., 1830.
(100) Curr-Directors, 14 Dec., 1830.
(101) Curr-Directors, 4 May, 1831.
(102) Curr-Col. Sec., 17 May, 1831, and 18 May, 1831.
(103) Frankland-Col. Sec., 17 Dec., 1831.
(104) Minutes of Executive Council, 26 Mar., 1832.
(105) Curr-Col. Sec., 1 June, 1832.
(106) Frankland-Arthur, 24 July, 1832.
(107) Minutes of Executive Council, 27 Aug., 1832.
(108) Curr-Directors, 5 May, 8 June, 4 Oct., 1832.
(109) Goderich-Arthur, 27 Mar., 1833.
(110) This letter conveyed to the Directors Murray's "definite and final" arrangements.
(111) Arthur-Goderich, 24 July, 1833.
(112) Hutchinson-Directors, 24 Dec., 1833.
(113) Memos. to the Secretary of State, 14 Feb., 14 April, 1834.
(114) Directors-Curr, 23 Sept., 1834.
(115) Aberdeen-Pearse, 8 April, 1835.
(116) Glenelg-Arthur, 20 June, 1835.
(117) Directors-Curr, 20 Aug., 1835.
(118) Curr-Directors, 23 Dec., 1835.
(119) Curr-Directors, 23 Dec., 1835.
(120) Curr-Directors, 31 May, 1836.
(121) Curr-Directors, 31 Aug., 1835.
(122) Curr-Directors, 31 May, 1836.
(123) Curr-Directors, 31 May, 1836.
(124) Curr-Directors, 22 Nov., 1830.
(125) Minutes of Executive Council, 7 Dec., 1835.
(126) Proposals to emigrants, 1833.
(127) Minutes of Executive Council, 7 Dec., 1835.
(128) Curr-Directors, 11 Sept., 1832.
(129) Arthur-Glenelg, 14 Jan., 1836.
(130) Ewen-Glenelg, 12 Jan., 1837.
(131) Arthur-Glenelg, 14 Jan., 1836.
(132) Curr-Inglis, 6 Mar., 1827.
(133) Directors-Curr, 20 July, 1837.
(134) Stephen-Ewen, 23 Aug., 1837.
(135) Ewen-Glenelg, 8 Sept., 1837.
(136) Directors-Curr, 7 Dec., 1837.
(137) Stephen-Ewen, 23 Mar., 1838.
(138) Ewen-Glenelg, 10 April, 1838.
(139) Stephen-Ewen, 10 April, 1838.
(140) Directors-Curr, 16 May, 1839.
(141) Labouchere-Ewen, 25 May, 1839.
(142) Colonial Secretary-Gibson, 12 Dec., 1843.

III. EXPLORATION.

MSS. in the V.D.L. Co.'s office at Burnie.
Inward and outward despatches and enclosures of the Governors, held in Tasmanian State Archives.
Jorgensen's MS. Journal, 1826, in the Mitchell Library, Sydney.
Third Annual Report of the V.D.L. Co., 1828.
Ross: Hobart Town Almanac, 1829-1836.
Bischoff: "Sketch of the History of Van Diemen's Land," London, 1832.
Geological Survey Bulletins: No. 3, 'Mount Farrell," by L. K. Ward; No. 10, 'Balfour," by L. K. Ward.
Proceedings of the Legislative Council, 1861, 1881.
Flinders: Voyage to Terra Australis. Introduction.

IV. POTENTATE OF THE NORTH.

(1) Minutes of Court, 5 July, 1825.
(2) Joint instruction to Curr and Adey, 14 Sept., 1825. Minutes of Court, 9 Aug., 1825, and I.D., 15/12/27. Colonial Times, 15/9/26.
(3) I.D., 15/12/27.
(4) Minutes of Court, 23 Aug., 1825, though Lorymer was not appointed until 6 Sept., 1825, replacing Richardson, who was appointed with Fossey.
(5) O.D., 11/3/26 and 29/3/26.
(6) O.D., 29/3/26.
(7) Order No. 7, 25 July, 1826.
(8) Minutes of Council of Management, 8/4/26, but no third member had been nominated, and O.D., 8/4/26.
(9) Colonial Times, 21/4/26.
(10) Colonial Times, 23/12/25.
(11) *Idem.*, 10/3/26.
(12) *Idem.*, 10/3/26.
(13) Colonial Times, 9/6/26.

(14) Murray's Austral-Asiatic Review, April, 1828, p. 141.
(15) As set out in Bathurst-Curr, 15/4/25.
(16) Hobart Town Gazette, 30/11/26.
(17) Colonial Times, 15/11/26. Zeal here outran judgment, for whaling and sealing were expressly forbidden by the charter.
(18) Hobart Town Gazette, 17/9/25.
(19) Hobart Town Gazette, 17/9/25.
(20) Hobart Town Courier, Mar., 1835.
(21) Hobart Town Gazette, 29/5/1816.
(22) Melville: Van Diemen's Land Almanac, 1832
(23) Launceston Advertiser, 4/1/1832. Leading article.
(24) Supra. Cap. 1. Note 37. Briggs had received as his grant the well-known estate of Merton Vale.
(25) O.D., 14/11/26.
(27) I.D., 4/8/26, and advertisements in the local papers in November and December, 1826.
(28) Colonial Times, 10/11/26.
(29) Colonial Times, 9/12/1825.
(30) O.D. 70, 10/11/27, and Lloyd, Thirty-three Years in Tasmania and Victoria, p. 261.
(31) Minutes of Council of Management, 14/12/1826.
(32) Not far from the modern district of Chudleigh.
(33) O.D. 150, 7 Oct., 1830.
(34) Curr-Bathurst, 30 Aug., 1825.
(35) Bathurst-Arthur, 13/9/25.
(36) Arthur-Bathurst, 4/4/1826.
(37) Bathurst-Arthur, 5/9 1826.
(38) O.D. 37, 14/12 1826.
(39) Goldie-Curr, 26/12/1826.
(40) Curr was a magistrate by virtue of his position as member of the Legislative Council. Arthur-Bathurst, 21/4/1826. H.R.A. III., Vol. V.
(41) O.D. 150, 7 Oct., 1830.
(42) O.D., 13 Feb., 1826.
(43) O.D., 6/3/1827.
(44) Orders 15, 24/1/1827, and 18 of 17/4 1827.
(45) Arthur-Hay, 22/4/1826.
(46) O.D. 86, 13/8/1829.
(47) I.D., 4 May, 1826.
(48) Minutes of Council of Management, 18 Jnue, 1827.
(49) Minutes of Council of Management, 9 July, 1827, and Order 21, 26/7/27.
(50) Minutes of Council of Management, 13 July, 1827.
(51) I.D., 23/8/27.
(52) Abolished 18/11/27. See I.D., 15/12/27.
(53) I.D., 15/12/27.
(54) Murray's Austral-Asiatic Review, Feb., 1828, pp. 23-29; June, 1828, pp. 287-299, and H.T.C., 3/11/1827, and 17/11 1827, for accounts and prospectus of the Bank; and O.D. 1, 11/3/1826, for the handsome profits made by the V.D.L. Bank, founded in 1823.
(55) O.D., 24/11/1828.
(56) O.D., 7/10/1830.
(57) I.D., 15/12/1827.
(58) Ross's Van Diemen's Land Almanack, 1835, p. 301.

V. THE COMPANY AND THE ABORIGINES.

Meston's paper "The Tasmanians—A Summary," published in the Records of the Queen Victoria Museum, Vol. II., No. 3, provides a useful background to this section.

(1) O.D. 51, Dec., 1828.
(2) The parklands found by Hellyer at the Surrey Hills and Hampshire Hills were their summer hunting-grounds kept clear by annual burning off.
(3) Order No. 4, 22 Mar., 1826.
(4) Despatch No. 11, 28 Feb., 1828.
(5) Despatch No. 45, 8 Oct., 1828.
(6) Despatch No. 100, 16 Nov., 1829.
(7) Despatch No. 103, 11 Dec., 1829.
(8) Despatch No. 118, 2 Mar., 1830.
(9) Despatch No. 86, 13 Aug., 1829.
(10) Despatch No. 100, 16 Nov., 1829.
(11) Despatch No. 100, 16 Nov., 1829.
(12) Despatch No. 111, 8 Jan., 1830.
(13) Despatch No. 130 28 April, 1830.
(14) Despatch No. 192, 4 Nov., 1831.
(15) Incoming Despatch No. 83, 28 Oct., 1828.
(16) Incoming Despatch No. 40, 23 Aug., 1827.
(17) Outgoing Despatch No. 234, 12 Aug., 1841.
(18) Outgoing Despatch No. 241, 3 Nov., 1841.
(19) Outgoing Despatch No. 1 (Gibson, Company's Agent), 25 Feb., 1842.
(20) Outgoing Despatch No. 218, 19 June, 1832.
(21) Outgoing Despatch No. 221, 8 Aug., 1832.
(22) Despatch by Dr. J. Hutchins, 10 April, 1834.
(23) Outgoing Despatch, 13 June, 1844.
(24) Outgoing Despatch, Dec., 1842.

VI. SETTLEMENT OF LANDS.

(1) General Instructions, 14/9/25.
(2) Gen. Order 4, 22 Mar., 1826.
(3) O.D., 8/9/26.
(4) Gen. Order 9, 8/9/26.
(5) Adey-Curr, 27/7/1826.
(6) Report of Goldie to Curr, 28/11/1826.
(7) 30 Aug., 1826.
(8) O.D., 1/7/26.
(9) O.D., 30/7/26.
(10) Adey-Curr, 28/10/26.
(11) O.D., 13/11/1826.
(12) O.D., 14/5/1827.
(13) O.D., 13/2/1827.
(14) O.D. 6 Oct., 1826.
(15) O.D., 3 Nov., 1826.
(16) O.D., 7 Oct., 1830.
(17) *Idem.*
(18) O.D., 17 April, 1827.
(19) Curr-Hellyer, 28 April, 1827.
(20) Minutes of Council of Management, 10 July, 1827.
(21) O.D., 13 Dec., 1828.
(22) Curr-Arthur, 1 June, 1832.
(23) Report of a visit to the settlement of the V.D.L. Co. by James Backhouse and George W. Walker, enclosed in Arthur-Hay, 9 July, 1833.
(24) Curr-Fossey, 3 April, 1827.
(25) See Jorgensen's "Fragment of a Journal" and the Third Annual Report of the V.D.L. Co., 1828.
(27) I.D., 30 Aug., 1826.
(28) O D., 13 Feb., 1827, and 7 Oct., 1830.

L. G. Shea, Government Printer, Tasmania.

New Series, No. 10.

RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

GEOLOGY OF THE BEACONSFIELD DISTRICT, INCLUDING THE ANDERSON'S CREEK ULTRABASIC COMPLEX

By

DAVID H. GREEN.

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ABSTRACT

Precambrian quartzites and phyllites are unconformably overlain by eugeosynclinal sediments of the Cambrian System. In the western part of the area the Cambrian sediments were intruded during the Upper Cambrian by ultrabasic and basic rocks of the Anderson's Creek Complex. The main rock type is partially or completely serpentinized enstatolite with lesser peridotite and clinopyroxene-rich rocks. Pyroxene gabbro with lesser hornblende gabbro occurs as a western and northern marginal belt of small intrusions and as pegmatitic phases within the complex. The pyroxene gabbros show partial or complete alteration to rodingites. Small albitite bodies occur within the complex.

During the Ordovician Period the miogeosynclinal Junee Group was deposited conformably in the east and unconformably in the west on the Cambrian rocks. The Junee Group shows rapid facies and thickness variation and is probably matched to the east by 5,000' of "Mathinna Group" sediments. Post-Ordovician orogenic movements (Tabberabberan Orogeny) with the maximum stress directed to the W.S.W. resulted in asymmetrical folding, steep thrusting and transcurrent faulting of the Junee Group and also caused diapiric cold movement of the ultrabasic complex.

During the Permian Period about 1,700' of marine sediments with strong glacial influence were deposited on a slightly irregular pre-Permian surface. A short fresh-water phase occurred near the middle of the sequence and at the top of the marine sequence there is an abrupt change into the fresh-water Clog Tom Sandstone overlain by the Triassic fresh-water beds.

Several discordant intrusions of dolerite were emplaced during the Jurassic Period and the major intrusion was controlled by the Palaeozoic structural trends. During the early Tertiary Period tensional faulting was followed by lacustrine sedimentation and then by minor extrusion of olivine basalt. A late Tertiary sea level at about 300' above the present level caused deposition of blanket-like vein-quartz gravels. More recent lower sea levels have allowed removal of Tertiary sediments from much of the area.

INTRODUCTION

This report summarizes the results of the geological mapping of the area between 469,000E-480,000E and 920,000N-930,000N (plate 1, fig. 1), surrounding the township of Beaconsfield in Northern Tasmania. The work was carried out during 1956 as part of a B.Sc. (Hons.) course at the University of Tasmania.

Earlier publications on the area include a number of reports on local parts of the area, particularly on the former chrysotile quarries at Anderson's Creek and the gold mines at Beaconsfield. During the latter part of 1956 and early 1957, Dr. G. Baker of the C.S.I.R.O. made an independent study of some of the rocks from the Anderson's Creek Ultrabasic Complex.

ACKNOWLEDGMENTS

The author wishes to thank Professor S. W. Carey and the members of the staff of the Geology Department of the University of Tasmania for their encouragement, interest and guidance throughout this work. The author also acknowledges the help of the Tasmanian Mines Department who readily allowed access to reports and maps in their possession. The work was done while the author held an Australian Atomic Energy Commission Undergraduate Scholarship and the author thanks the Commission for permission to publish the work.

The author thanks Mr. and Mrs. J. Hawkey and other residents of the Beaconsfield district for many courtesies extended to him during the field work.

TOPOGRAPHY

The area under diseussion lies between the 2,000' Asbestos Range, eomposed of Preeambrian quartzites and schists, to the west and the Tamar Estuary with its shores of Tertiary, Mesozoie and Permian rocks to the east. Between these two the folded and faulted Lower Palaeozoie sediments and igneous roeks give rise to a number of prominent linear ridges.

The Cabbage Tree Conglomerate eharaeteristieally forms resistant, comparatively high ridges, including Blue Tier and Cabbage Tree Hill (650 -200 feet), Blue Peaked Hill (950 feet), and the ridges on the eastern margin of the ultrabasie eomplex. The Blue Tier-Cabbage Tree Hill ridge is cut by streams in only two places and both of these are along fault lines. The remainder of the Cambrian, Ordovician, Permian, Triassie and Tertiary sediments generally form low, gently undulating eountry. However, the keratophyre member of the Dally's Siltstone, the Jurassie dolerite and the Permian Liffey Sandstone, tend to be more resistant to erosion and form low searps or more prominent hills.

Anderson's Creek, the major stream in the area, flows through a rather mature valley in the ultrabasic rocks but has two small gorges giving rise to loeal base levels. These gorges occur north of Settlers Hills and north-west of Simmonds Hill. In the lower part of its eourse Anderson's Creek is flowing to a large extent on Permian bedroek.

The eentral north part of the area is an undulating surfaee, quite eonstant in height (200-230 feet) at its southern edge but descending to 100-120 feet to the north. A similar surfaee extends south-west towards Anderson's Creek and rises in this direetion to 400-430 feet. The latter part of the surfaee has more relief than the northern part but is similarly covered with stunted vegetation growing on vein-quartz gravels. These blanket-like deposits of gravel extend over the Owen Conglomerate forming the eastern margin of the ultrabasic eomplex, and rest direetly on the eomplex itself. In this area the gravels tend to be more resistant to erosion than the underlying serpentinite with the result that this side of the Anderson's Creek valley is a small esearpment with many old landslip sears.

Recent Changes in Sea-Level as Recorded by Shorelines and River Terraees:—Exeept at stream mouths the shores of Middle Arm are eharaeterized by rather wide shore platforms in front of a eliffed shore. A 10-15 feet level can generally be observed either as a eliff-top level or as a terraee with its base some 3-5 feet above the present shore platform. This 10-15 feet level is also well developed on the shores of West Arm near the mouth of Anderson's Creek.

In some places, particularly north of Swift's Jetty, there is a distinet beneh at 25-30 feet and this in some places rises directly from the shore platform. Benehes have also been observed at 70-80 feet in several plaees but these are isolated eases and their signifieanee and former extent is unknown.

The lower two benehes are erosional surfaees eut in the Permian and Triassic sediments and seem most reasonably regarded as old shore lines.

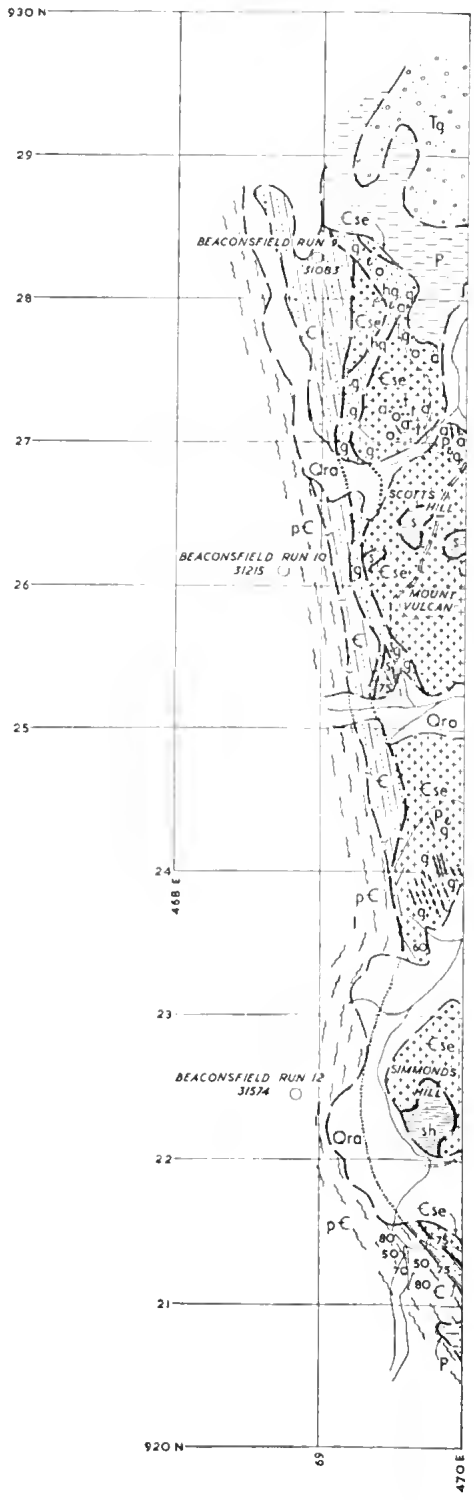

FIGURE 1.

South of Settlers Hills there are no terrace levels evident on Anderson's Creek. However, at Leonardsburgh there is a distinct terrace 20-25 feet above creek level—this terrace is cut in Permian sediments and capped by river conglomerate. Further north there are two terrace levels present, one ten feet and the other about 30 feet above creek level. The 10 feet level is continuous with the 10-15 feet level on the shore of West Arm and the 30 feet level is probably related to the similar level on the shores of Middle Arm.

East of the West Tamar Highway, Blyth's Creek is also entrenched about 10 feet in a flat composed of alluvium and of Permian or Tertiary sediments. There is also some evidence of a higher terrace level.

The evidence from both stream terraces and old shore-lines points to two comparatively recent falls in sea-level, the later one of about 10-15 feet and the earlier of a further 10-15 feet or more.

STRATIGRAPHY

Precambrian Rocks.

Precambrian rocks occur only on the western margin of the area mapped and no attempt was made to examine them in detail. These Precambrian rocks consist of thick-bedded quartzites and quartz-sericite phyllites both possessing a clearly defined schistosity and lineation.

The age of the Sinmonds Hill Metamorphies and the Settlers Metamorphosed Greywacke is either Cambrian or Precambrian.

Cambrian System.

The contact between Cambrian and Precambrian rocks cannot be observed in the field. Near 697E 214N there is only a 20-yard gap between Cambrian and Precambrian outcrops. The former dips northeast at a steep angle and does not show any small-scale folding. The Precambrian here, and slightly to the west, shows small-scale folding with rapid variation of dips. Structural unconformity is established in this area and stratigraphic unconformity is inferred. For a distance of about three miles north from 695E 240N the contact between Cambrian and Precambrian is obscured by scree of more resistant Precambrian. The contact zone runs as a fairly well defined linear and it is probably a simple unconformity, dipping steeply north of east. However, the possibility of a major fault cannot be ruled out.

Cambrian sediments occur in four separate areas and structural environments. Correlation between these areas was found to be impossible and in two areas only was exposure sufficiently good to enable definition of several formations and members.

Dally's Siltstone.

The Dally's Siltstone is defined as that formation dominantly of greywacke and subgreywacke siltstones lying conformably below the Junee Group east of Blue Tier. It is Middle to Upper Cambrian in age and the typical exposures occur at 765E 236N, about 400 yds. east of Dally's Quarry from which the formation takes its name.

The Dally's Siltstone is not less than 1,100 feet and probably over 2,000 feet thick. The base of the formation is not exposed. The formation contains interbedded black and brown slates with occasional fine greywacke conglomerates and some siltstones. These are overlain by dull brown, subgreywacke siltstones and then by impure quartz sandstones. These sandstones seem to lie on approximately the same horizon as a keratophyre lens, located to the south. The keratophyre will be discussed in the section on igneous petrology but is overlain near 779E 217N by hard, fossiliferous subgreywacke sandstone, then by micaceous phyllites and finally by fossiliferous yellow-brown subgreywacke siltstones. This is overlain by the Blyth's Creek Formation of the Junee Group. There is no evidence of an unconformity between the Dally's Siltstones and the Junee Group, but a disconformity may or may not be present.

Poorly preserved brachiopods and trilobites were found only in the upper part of the formation. The following is an extract from a letter from Dr. A. A. Opik to Mr. M. R. Banks concerning these fossils: "I myself am inclined to interpret this eranidium as belonging to *Dresbachia* or a related genus that occurs in this same O'Hara Shale at its base. The third possibility is *Bolaspidella*, a genus of the Middle Cambrian-Upper Cambrian passage in America. A genus related to *Dresbachia* occurs also in Tasmania in the Comet Slate in association with *Blackwelderia biloba*, and another form in the Upper Cambrian of the Ring River. All this indicates only one age for the Beaconsfield fauna—top of the Middle Cambrian and/or lowermost Upper Cambrian".

Ilfracombe Slate.

The Ilfracombe Slate is that formation of black slate and greywacke lying conformably below the Junee Group and outcropping immediately west of Cabbage Tree Hill and Blue Tier. Typical exposures occur near 735E 256N. The formation occupies a similar stratigraphic position to and probably interfingers with the Dally's Siltstone.

The upper 1,000 feet or so of the formation consist of black slate and fine greywacke siltstone. The lower 600 feet contain more abundant greywacke sandstone and siltstone and also subgreywacke and quartzose sediments. Scott (1952) described a thin section of pierite basalt from the "Western Tasmania Copper Mine at Beaconsfield". This was probably from the Ilfracombe Slate but its presence could not be confirmed by the author's field work. No fossils were found so that the formation is placed in the Cambrian System on lithology and stratigraphic position only.

Undifferentiated Cambrian Sediments.—Surface float of impure quartzites and greywacke siltstone occurs on a hill at 729E 204N. The lithology is suggestive of Cambrian sediments and this is consistent with their structural position at the core of a major anticline.

Along the greater part of the western edge of the Anderson's Creek Ultrabasic Complex there is a narrow strip of Cambrian sediments between the Complex and the Precambrian rocks of the Asbestos Range. In only two areas (693E 214N and 691E 270N) is there any solid outcrop of these sediments but surface float is not uncommon along the whole belt. The thickness of sediments cannot be gauged accurately but near 693E 214N there is probably no more than 250 feet of thin black slate, impure sandstones, including greywackes, and possibly some tuffaceous material. Near the contact are quartz-albite-amphibole rocks probably formed by meta-

morphism of the sediments by the Complex. The following rock-types were seen, generally as surface float, in this belt of sediments:—Clay-pellet subgreywackes; siltstones, some possibly tuffaceous; black and brown slates; reddish quartz sandstones with much clayey matrix and large muscovite flakes; dark-grey greywackes or tuffs. No fossils were found in any of these rocks and correlation with the Cambrian System is purely on lithological and structural grounds.

ORDOVICIAN SYSTEM

The Junee Group.—The Ordovician sediments of the Beaconsfield Area can now be correlated with the Junee Group of other parts of Tasmania. The names Beaconsfield Series and Cabbage Tree Hill Series have previously been applied to rocks now correlated with the Junee Group, but these names have been discarded in favour of the established Junee Group since the previous terms have not been formally defined and appear to include rocks now regarded as Cambrian.

The Relationship between the Junee Group and the Cambrian System.—The Junee Group occurs in four different structures in the area and its relationship to the underlying Cambrian System must be discussed separately for each of these areas.

The most easterly belt of the Junee Group overlies the Dally's Siltstone near 782E 214N and 767E 240N. In this area the Junee Group in the northern outcrops shows minor folding and, although outcrop is not sufficiently good to confirm the relationship, the basal Blyth's Creek Formation is considered to overlie conformably the Dally's Siltstone.

The Junee Group on Cabbage Tree Hill and Blue Tier probably rests conformably on the Ilfracombe Slate. Although the contact cannot be seen and surface mapping does little to solve this problem, there is no evidence of unconformity. A number of the cross cuts and shafts of the Tasmania Gold Mine passed from the Junee Group into the Ilfracombe Slate. The sections through Cabbage Tree Hill given by Montgomery (1891), Twelvetrees (1903), and Hughes (1953) all agree in showing the grits and conglomerates of the Junee Group underlain conformably by slates of the Cambrian System. The relationship between the Cambrian sediments near 730E 205N and the Cabbage Tree Conglomerate to the north-east is completely unknown due to lack of outcrop.

The westernmost exposures of the Junee Group in the area rest directly on the Anderson's Creek Ultrabasic Complex and unconformity is clearly established. The contact is not exposed but an impure sandstone from very near the base of the sediments occurs on the old roadway at 7108E 2633N. A thin section (No. 8182) of this sediment shows that it consists of 60-70% of large, irregular, fibrous grains of tremolite-actinolite set in a matrix of fine-grained, sub-rounded quartz and opaque minerals. A cursory examination of the heavy minerals present revealed a dominance of magnetite with much chromite and smaller amounts of pyrite, galena, chalcopyrite, garnet (probable), osmiridium (probable but very rare), and possibly ilmenite. The tremolite-actinolite grains do not have a clastic appearance and it is considered highly unlikely that this mineral could have been deposited clastically in its present form. The tremolite-actinolite is interpreted as an alteration product of clastic pyroxene crystals derived from the partially serpentinized pyroxenites occurring in the underlying ultrabasic complex. If this explanation of the composition of the basal Junee Group is accepted then this implies that the ultrabasic complex was emplaced in pre-Ordovician times and exposed at the surface during the Ordovician.

The complex has previously been regarded as Devonian in age and intruding the sediments now correlated with the Junee Group (Reid, 1919; Taylor, 1955), this conclusion being mainly based on the local areas of silicification of the basal Junee Group where it lies on the complex, e.g., the creamy chert at 720E 243N. The presence of this silicification (which is adjacent to a major Devonian fault line) does not refute the presence of an unconformity. Silicification may be due to post-Ordovician hydrothermal activity in the ultrabasic complex.

Blyth's Creek Formation.

The Blyth's Creek Formation is defined as the friable quartz sandstone formation conformably or disconformably overlying the Dally's Siltstone and conformably overlain by the Cabbage Tree Conglomerate. The typical exposures occur near 766E 236N adjacent to Blyth's Creek from which the formation is named.

The formation is about 100' thick and consists of coarse, quartz sandstones, generally yellow or pinkish in colour and containing a small amount of muscovite. The sandstones are typically not silicified and tend to be rather friable. West of the quarry at 766E 236N are fine conglomerate and grits, lenticular and very thin. The quarry at 766E 236N was opened on limestone, probably no more than 20 feet thick and apparently white and recrystallized. The formation resembles the Junee Group rather than the Cambrian System in lithology, but there is no fossil evidence to indicate the age. The lithology is completely different from the Jukes Breccia which underlies the Owen Conglomerate in other parts of Tasmania. There is a possible disconformity between the formation and the underlying Dally's Siltstone but there is no evidence of unconformity.

At 7566E-2280N friable, unsilicified yellow-brown quartz sandstones occur conformably below the typical Cabbage Tree Conglomerate and merge into it. No limestone could be found but these beds are probably the Blyth's Creek Formation. Further north on Cabbage Tree Hill there is no surface evidence of the Blyth's Creek Formation but Twelvetrees (1903) reported a thin limestone encountered on the 700 feet level, west of the Tasmania Mine (746E 254N) and again on the 800 feet level of the Wonder Mine (738E 258N). The position of this limestone seems to be about 130 feet above the Ilfracombe Slate, within sandstones that are commonly pyritic and below the typical Cabbage Tree Conglomerate. It is inferred that the Blyth's Creek Formation is present in this area, is 150-200 feet thick, and lies conformably between the Ilfracombe Slate and the Cabbage Tree Conglomerate.

The Blyth's Creek Formation may or may not be present below the Cabbage Tree Conglomerate on Blue Peaked Hill and overlying the ultrabasic complex near grid line 720E. However, in the road

section near 711E-263N friable sandstones occur below the typical Cabbage Tree Conglomerate, and may be equivalent to the Blyth's Creek Formation. The significance of the basal impure sandstone in deducing unconformity in this area has already been discussed.

Cabbage Tree Conglomerate.—As with the Blyth's Creek Formation, the Cabbage Tree Conglomerate occurs in four separate areas and structural environments and in each of these has certain different features.

The most easterly belt of Cabbage Tree Conglomerate outcrops at 765E-246N and further south at 782E-213N. The formation is about 20 feet thick and consists of quartzites (highly siliceous, recrystallised and with some quartz veining) with occasional fine quartz grits. The quartzite contains small chromite grains.

The Cabbage Tree Conglomerate (Johnston, 1888; Twelvetrees, 1900) on the Cabbage Tree Hill-Blue Tier ridge is well exposed in a road section at 757E-228N. The formation is here about 200 feet thick but both the top and base of the formation are gradational. Grey to black quartzites and quartz grits are dominant but there are occasional thin beds of black shale and, towards the base, fine conglomerates become common, some with pebbles up to 2-3 inches. There are occasional quartz breccias in the lower part of the formation and in these white chert fragments are very common. Chromite grains are common on a number of horizons, all low in the sequence. Many sandstones in the upper part of the sequence are tubicolar. The formation is generally thick or massive bedded and current bedding is common.

The Cabbage Tree Conglomerate further north on Cabbage Tree Hill changes in thickness although the lithology remains fairly constant. At the Tasmania Mine this formation is 600-700 feet thick.

The structure on Blue Peaked Hill is a north-plunging asymmetrical anticline. Owing to the possibility of minor folding and the uncertainty of the exact position of the base of the formation the thickness cannot be measured accurately. However, the thickness, assuming no minor folding, seems to be about 2,900 feet on the north-eastern flank of the anticline, and on the western limb, close to the fold axis, about 1,000 feet. The lithology of the formation on Blue Peaked Hill is somewhat different and two members were mapped. The lower member contains very siliceous quartzites, grits and conglomerates similar to those low in the Cabbage Tree Hill sequence. In the upper member tubicolar, non-recrystallized quartz sandstones are dominant; flaggy quartz sandstones are common but grits are very rare. There is a striking vegetation difference between the two members as the soil is very siliceous and apparently infertile on the lower member.

Along the south-eastern margin of the ultrabasic complex the Cabbage Tree Conglomerate is represented by about 250 feet of grey quartzites and tubicolar sandstones. Grits are absent or very rare and the formation becomes more micaceous towards the top, finally passing gradationally into the Caroline Creek Sandstone.

Further north at 711E-263N the Cabbage Tree Conglomerate is 50 ± 5 feet thick and contains grey quartzites showing excellent small scale current bedding, and fine, white, quartz conglomerate with some beds of soft, friable sandstones.

To summarize the features of the Cabbage Tree Conglomerate in the area it can be said that the formation varies rapidly in thickness (fig. 2). The lithology is also rather variable but it typified by its constant highly-siliceous nature, considered to be an original sedimentary feature. The Cabbage Tree Conglomerate is correlated with the Owen Conglomerate because of similar lithology and similarity in stratigraphic position.

Caroline Creek Sandstone.—This formation lies conformably above the Cabbage Tree Conglomerate and below the Gordon Limestone. There is a gradational change in character from the Cabbage Tree Conglomerate quartzites to sandstones and siltstones, generally thin bedded and slightly micaceous, and the base of the formation is arbitrarily chosen as the top of the uppermost grit horizon. As with the other Junee Group formations the stratigraphy of the four separate structural environments must be discussed separately.

At Blyth's Creek (7655E-2460N), overlying the Cabbage Tree Conglomerate, but with about 40 feet of unexposed section between, there is a soft, yellow-brown, fine siltstone with limonitic cavities perhaps due to the former presence of fossils. A thin limestone bed was formerly quarried about 10 yards to the east of this but no outcrop of this could be found. These beds are unlike the typical Caroline Creek Sandstone and they are included here because of their stratigraphic position above the Cabbage Tree Conglomerate.

The Caroline Creek Sandstone is very well exposed along the roadside near 760E-230N. The total exposed thickness is about 650 feet and the actual thickness probably not over 750 feet. The formation has been divided into three members. The lowest member is about 180 feet thick and towards the base consists of brown and off-white, thick and thin bedded, micaceous sandstones lacking the complete recrystallization of the Cabbage Tree Conglomerate. These gradually grade up into darker grey, micaceous quartz sandstones with occasional beds of black shale. Some of the more massive sandstones show a degree of purity and recrystallization comparable to that of the Cabbage Tree Conglomerate. No fossils have been found in the lowest member.

The middle member is about 60 feet thick and there is a gap of 20 feet between its lowest exposure and the top of the lowest member. The member consists of fine quartz sandstones, generally friable, and with variable amounts of clayey matrix. A distinctive dull green siltstone about 4 feet thick is seen in thin section (No. 8,161) to consist of about 30% angular quartz grains set in a chloritic matrix (50%) with irregularly distributed patches of opaque oxides. The prominent feature is the presence (20%) of patches and bands of rounded or very irregularly shaped bodies composed of fibrous, colourless amphibole and often having a well formed spherulitic structure. These bodies were probably primarily of organic origin. The

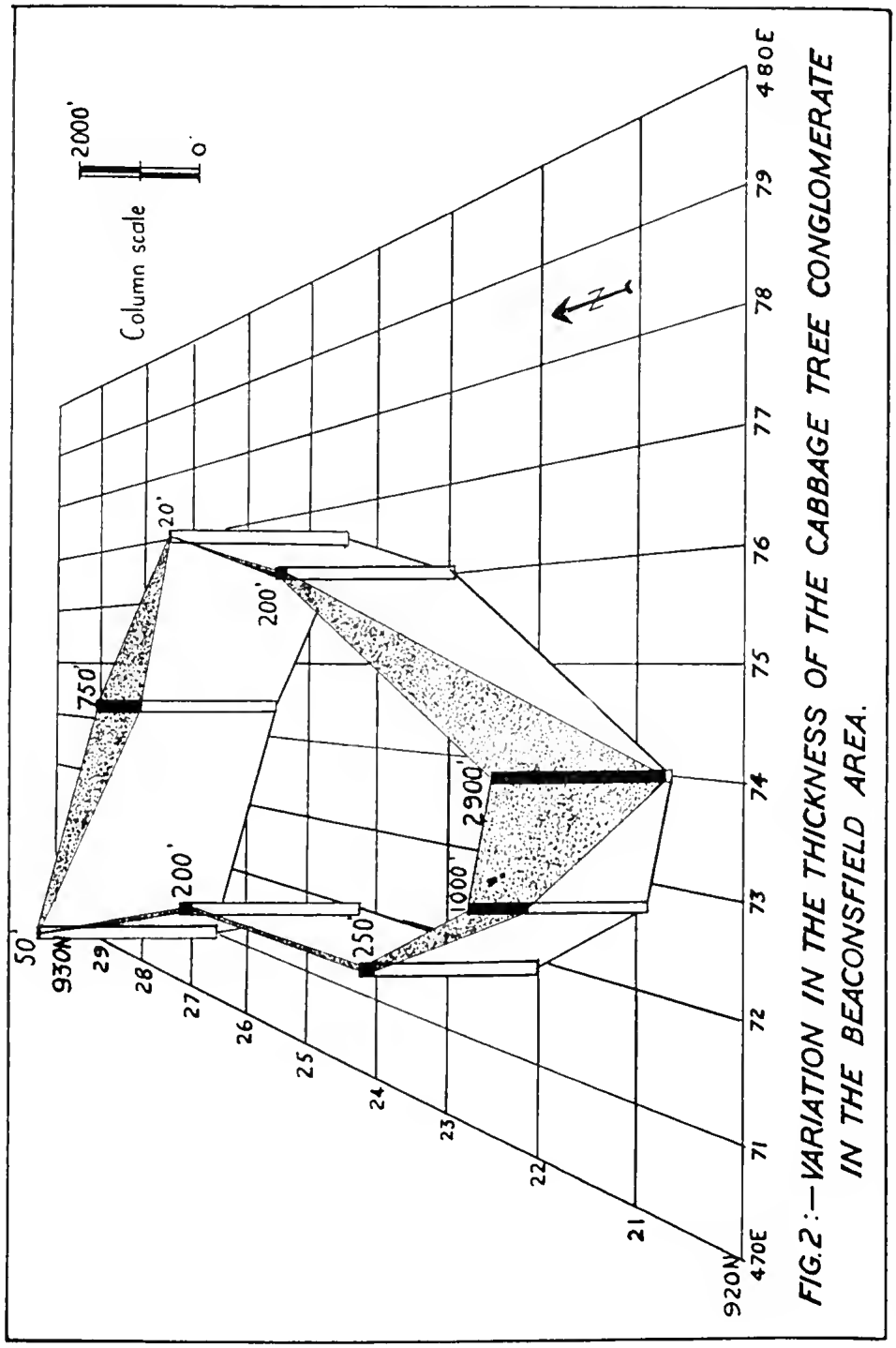

FIG. 2:—VARIATION IN THE THICKNESS OF THE CABBAGE TREE CONGLOMERATE IN THE BEACONSFIELD AREA.

member is quite richly fossiliferous but preservation is poor. The following were identified by M. R. Banks of the Geology Department, University of Tasmania: Hyolithids, an orthid brachiopod, trilobite fragments, cystoid calical plates and echinoderm columnals.

The upper member of the formation is over 400 feet thick and consists of monotonous white and buff-coloured thin-bedded micaceous sandstones and some siltstones. Some beds are fossiliferous but preservation was too poor to make identification possible.

Further north on Cabbage Tree Hill, fossils occur in a mine dump near 735E-267N in material probably from the top of the Cabbage Tree Conglomerate or base of the Caroline Creek Sandstone. The forms identified include *?Tritoechia*, a *Paurorthis*-like brachiopod, and trilobite, cystoid and echinoderm fragments.

East of the ultrabasic complex at 7215E-2420N pale-yellow, thin-bedded micaceous quartz sandstones are overlain by a coarser friable sandstone which is in part richly fossiliferous. The following have been identified: *Tritoechia* sp., an orthid brachiopod appearing somewhat like *Paurorthis*, and the trilobites *Tasmanaspis lewisi* and *Prosopiscus subquadratus*. These trilobites have been recorded from the type locality of the Caroline Creek Sandstone.

Again at 7115E-2635N about 100 feet of thin bedded and flaggy, white micaceous quartz sandstones with lesser siltstones contain poorly preserved fossils, including the *Paurorthis*-like brachiopod, an asaphid trilobite, and cystoid calical plates.

In general, the Beaconsfield fossils are not well preserved, but M. R. Banks considers them adequate to demonstrate a Lower Ordovician age (personal communication).

Leonardsburgh Siltstone

The Leonardsburgh Siltstone is defined as that formation of monotonous black or dark-grey siltstone conformably overlying the Caroline Creek Sandstone and conformably underlying sandstones and shales possibly equivalent to the Grubb Beds. The typical exposures occur near 711E-270N and the formation takes its name from a nearby property. The formation is considered to be a northern and western facies equivalent of the Gordon Limestone in the Beaconsfield area.

In the type area the formation has a well-defined cleavage but bedding is rarely evident. The siltstone is slightly micaceous and yellow-brown on weathered surfaces. The thickness in the area is about 950 feet and the overlying beds include white, fine sandstones and taleose shales. Although the base and top of the formations are not well exposed there is little doubt that the formation forms part of the conformable Junee Group sequence.

At 725E-214N on the western limb of the Blue Peaked Hill Anticline overlying the Caroline Creek Sandstone occur fine, very fissile, black siltstone and a little slate. The siltstones are slightly micaceous and are yellow or yellow-brown when weathered. Though slightly finer grained and more fissile, these siltstones are similar in lithology and stratigraphic position and are correlated with the Leonardsburgh Siltstone.

No fossils could be identified from the formation. The typical exposures at 711E-270N contain very doubtful organic remains.

Gordon Limestone.—The Gordon Limestone conformably overlies the Caroline Creek Sandstone east of Cabbage Tree Hill. The base of the formation is not exposed and the only exposures, at 761E-236N, are at the top of the formation. The formation here is a massive blue limestone, generally completely lacking evidence of bedding but in places showing bedding by the presence of probable algal organisms. The thickness, calculated from the width of the distinctive topographic feature, is about 550 ± 100 feet. The limestone was interseeted further north in the workings of the Tasmania Mine, and Montgomery (1891) gave the following section:—

Slate—Grubb Beds

Limestone	Gordon Limestone.	= 60	feet
Slate		= 70	,,
Sandstone		= 60	,,
Slate		= 15	,,
Limestone		= 15	,,
Slate		= 100	,,
Limestone		= 200	,,
	Total	= 520	feet

Light-bluish, grey and yellow sandstones (Caroline Creek) = 400 feet.

There is no evidence that the formation at 761E-236N contains slate and sandstone members and if these are absent then an increase to the north-west in the content of clastic material is indicated. In this eastern area there is no Leonardsburgh Siltstone immediately above the Caroline Creek Sandstone. No outcrops of Gordon Limestone were found in either of the structural lows to the west of Cabbage Tree Hill.

Grubb Beds

This name is given to those beds lying conformably above the Gordon Limestone. Exposures are very rare and occur on Grubb Street, Beaconsfield, at 750E-254N, at 747E-260N, and at 761E-236N.

The two northern exposures consist of fine, white, micaceous sandstones and siltstones somewhat like those overlying the Leonardsburgh Siltstone. Further south the limestone in Dally's Quarry (761E-236N) is overlain by over 200 feet of black, slightly-micaceous slate.

Correlation of the Junee Group.—Due to the lack of fossil evidence, correlation of the formations is mainly based on stratigraphic position and lithology. The exception to this is the Caroline Creek Sandstone, since the fossils found in this formation enable correlation within the area and with the Caroline Creek Sandstone as developed elsewhere in Tasmania.

The Blyth's Creek Formation is newly-defined in the Beaconsfield area. Its stratigraphic position corresponds to that of the Jukes Breccia but it is completely unlike this in lithology.

The Cabbage Tree Conglomerate in the Beaconsfield area resembles the Owen Conglomerate in the type area in its siliceous nature, presence of

conglomerate and tubicolar sandstones and in the presence of chromite grains, though these occur within 100 feet of the top of the formation in the Queenstown area and very near the base in the Beaconsfield area. It differs from the type area in the comparative rarity of conglomerates and the dominance of quartzites and grits, and the lack of pink haematite staining.

The correlation of the Gordon Limestone with the rest of Tasmania is based on its characteristic lithology and its stratigraphic position above the Caroline Creek Sandstone. There is no palaeontological evidence to confirm this. The Leonardsburgh Siltstone occupies the stratigraphic position of the Gordon Limestone in the western part of the area and is apparently absent in the south-eastern part. There is also a northward increase in the clastic content of the Gordon Limestone east of Cabbage Tree Hill, and it is likely that the Leonardsburgh Siltstone is a western and northern facies variant of the Gordon Limestone.

The sediments above the Gordon Limestone resemble the Mathinna Group rather than the Eldon Group of Western Tasmania.

Palaeogeography of the Junee Group.—The Cabbage Tree Conglomerate varies rapidly in thickness throughout the area as shown in fig. 2. This variation may reflect the shape of the depositional basin as is implied in fig. 2 or the Cabbage Tree Conglomerate may be a lens-shaped, near-shore deposit which changes along the strike into Caroline Creek Sandstone, Gordon Limestone, and perhaps subgreywacke of the Mathinna Group type. This second interpretation is shown in fig. 3.

There is some evidence which favours the second hypothesis since chromite grains occur in the 20-feet thickness of Cabbage Tree Conglomerate on Blyth's Creek and again near the base of the 200-feet sequence on Cabbage Tree Hill. Accepting the chromite-containing beds as a marker horizon, then the thinning to the east from 200 feet to 20 feet is due to facies change and not to lensing out on a rising basement to the east.

The thinning of the Cabbage Tree Conglomerate to the west is most reasonably explained as a thinning on to a stable source area—the Asbestos Range. There is little increase in grain size to the east, but with the interpretation shown, fine conglomerates were being deposited on the ultrabasic complex while tubicolar sandstones were being deposited further east.

The Caroline Creek Sandstone has a similar pattern of thickness variation and this is interpreted as due to facies change as shown in fig. 3. The Gordon Limestone at Flowery Gully south of Blue Peaked Hill is around 1,700-2,000 feet thick (Noakes, Burton and Randal, 1954) but is only about 500 feet thick east of Cabbage Tree Hill. As shown in fig. 3, this can also be interpreted as due to facies change. The Gordon Limestone is also considered to pass laterally westward and northward into Leonardsburgh Siltstone. Accepting the reconstruction of the Junee Group sedimentation as shown in fig. 3, there are at least 5,000 feet of sediments to the east which are stratigraphically equivalent to the Junee Group. These are seen in the area only as isolated outcrops of

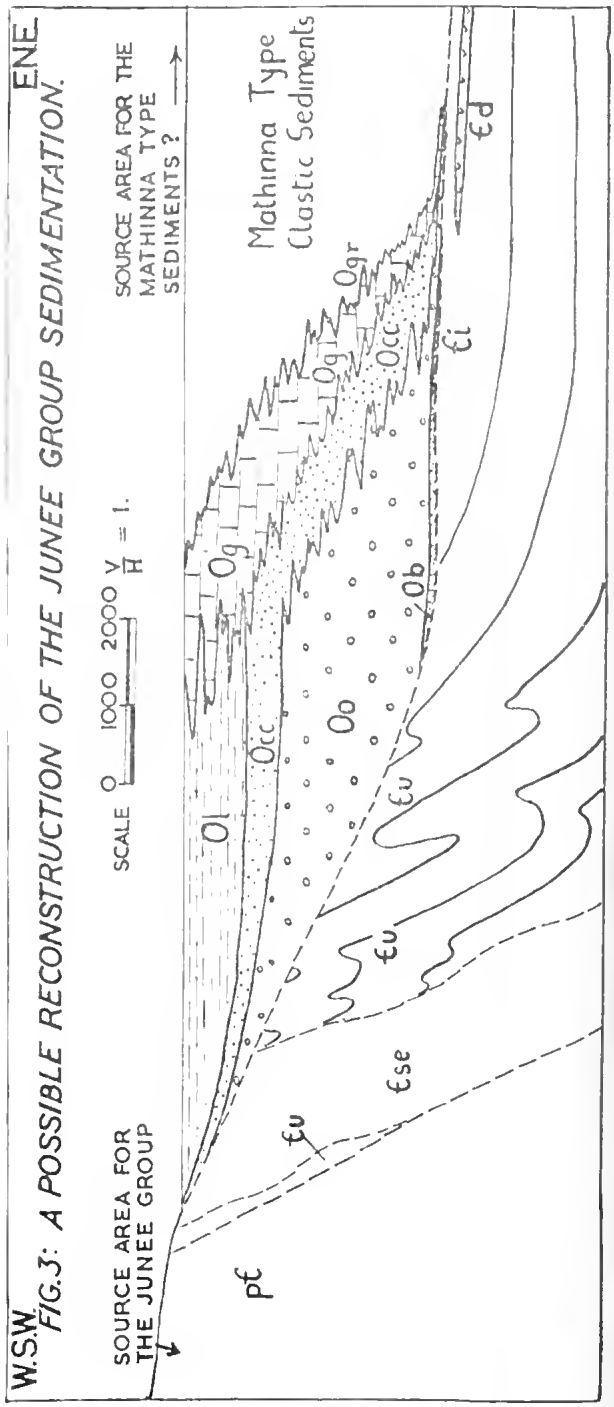

FIG. 3: A POSSIBLE RECONSTRUCTION OF THE JUNEE GROUP SEDIMENTATION.

the Grubb Beds but are probably equivalent in part to the Mathinna Group of north-eastern Tasmania. The source area for these sediments is unknown but does not lie to the west. It is possible that in the eastern part of the area there

has been conformable sedimentation, including the Cambrian Dally's Siltstone, the Cabbage Tree Conglomerate (20 feet) and then about 5,000 feet of clastic sediments, probably dominantly of subgreywacke type .

PERMIAN SYSTEM.

A gently-dipping sequence of Permian rocks unconformably overlies Ordovician, Cambrian and Precambrian rocks. The system is almost entirely marine, although the portion actually containing marine fossils is very small. The thickness of the system is variable owing to irregularities of the surface of unconformity but is of the order of 1,700 feet.

Along the shores of Middle Arm there is very good exposure of the most eastern area of Permian sediments but the sediments unconformably overlying the ultrabasic complex in the northern part of the area are poorly exposed and, with the exception of the Darlington Limestone, correlation with the Middle Arm section is not possible. No evidence of the Liffey Sandstone, the distinctive third and fifth members of the Woodbridge Formation or the Garcia Formation was found. It is likely that the Liffey Sandstone at least has lensed out in the northern area. In the southwest corner of the area basal Permian breccias and conglomerates overlie the ultrabasic complex and the Precambrian rocks. Correlation of these beds with the rest of the area is again not possible and it is possible that a Permian shoreline existed to the west parallel to the Asbestos Range causing a change in sedimentation in this area.

Quamby Siltstone (Wells, 1957).—The Quamby Siltstone is the lowermost Permian formation in the Beaconsfield area. Exposure is not good but the formation consists of up to 850 feet of monotonous blue-grey and grey micaceous siltstones, very poorly fossiliferous and containing a varying abundance of erratics. The basal beds are probably richer in erratics but there is no evidence of any till below the siltstone. In general the erratics are sparse and are commonly perfectly rounded. Rare fossils include spiriferids, *Stenopora* and ostracodes. Two very significant features of the formation are the presence of large (up to 6 feet x 3 feet x 3 feet) calcareous concretions on certain horizons and the presence of probable glendonites in association with them.

The character of the top of the formation is not clear but it probably includes blue-grey fossiliferous siltstones, rich in erratics, in the upper 40 feet and finally about 5 feet of yellow shales, rich in fenestrate bryozoans.

Darlington Limestone.—This formation is 4 feet thick and consists of rather pure limestone interbedded with black calcareous shales, in which erratics are especially common. The limestone is richly fossiliferous and contains *Stenopora*, fenestrate bryozoans, "*Martiniopsis*", several spiriferids, common *Strophalosia* sp. and occasional gastropods. *Eurydesma cordatum* occurs in clusters and is generally convex upwards. Common *Caleitornella* sp. supports correlation with the Darlington Limestone.

Swift's Jetty Sandstone.

The Swift's Jetty Sandstone is defined as that formation of fossiliferous, erratic-rich sandstone with interbedded shale lying conformably above the Darlington Limestone and below the Liffey Sandstone. The typical exposures occur near 767E-263N and the formation takes its name from the old jetty at 766E-268N.

The formation is approximately 50 feet thick. The lower 25 feet consist of coarse, poorly-sorted dark-grey sandstone containing common erratics, some up to 13 inches long, usually smooth and rounded but in some cases very angular and faceted. Interbedded with the sandstones and becoming dominant towards the top of the formation are yellow and buff-coloured shales and fine siltstones. Fossils are common throughout the formation, and include large spiriferids, *Strophalosia* sp., *Keenia ocula*, and uncommon *Eurydesma*. *Stenopora*, fenestrate bryozoans and crinoid columnals occur in the finer grained beds.

The Darlington Limestone and Swift's Jetty Sandstone together are equivalent to the Golden Valley Formation of Wells (1957), and the Golden Valley Group of McKellar (1957), excluding the Quamby Mudstone.

Liffey Sandstone (Wells ,1957).—The base of this formation does not outcrop but its thickness is approximately 10 feet near Swift's Jetty. It is probable that the formation becomes thicker towards the south-east. It contains sandstones ranging in composition from quartz, quartz-mica to quartz-mica-graphite and varying from thick-bedded to thin-bedded and flaggy with low angle current bedding.

The absence of marine fossils and erratics and the presence of common graphite strongly suggests a fresh-water origin for the beds.

Woodbridge Formation (Prider, 1948; Wells, 1957).—This formation is approximately 70 feet thick and contains a variety of lithologies. The basal member is a 5-feet grey-white sandstone containing abundant tubular bodies (worm casts?). At the base of this a 3-inch band rich in erratics rests abruptly on the Liffey Sandstone. The nature of the contact suggests a diseonformity.

The second member consists of about 20 feet of grey sandstones with abundant erratics often occurring in clusters. Fragmentary fossils are particularly common in the upper part of the member. These fossils also tend to occur in clusters and include spiriferids, rare *Strophalosia*, *Stenopora* and *Dielasma*. This member is overlain abruptly by a thickness of 5 feet of calcareous siltstone characterized by the abundance of fenestrate bryozoans. A rich pelecypod fauna is also present but forms are usually small and confined to certain bands. Pelecypods include *Astartila* and *Stutchburia*. *Stenopora crinita* and other species, *Hyolithes lanceolata*, *Mourlonia* and other gastropods, spiriferids and *Dielasma* are also present.

The fourth member is about 25 feet thick and changes gradually from a blue-grey siltstone with rather common erratics to yellow-brown fine sandstone rich in erratics but apparently non-fossiliferous. This is overlain by the fifth member which is a yellow, bryozoal shale grading upward into a richly-fossiliferous sandstone. In this the fossils are preserved only as moulds, contrasting

with the original shell material preserved in lower beds. Fossils present include *Polypora, Fenestella* sp., *Stenopora* sp., *Dielasma*, alate spiriferids, including *Neospirifer*, large and small pectens and other pelecypods, and small gastropods.

The Woodbridge Formation has not been split further into Meander, Dabool and Weston Formations as has been done by McKellar (1957) in the Palmer River area. This is impracticable as the lithologies and thicknesses in the Beaconsfield area are rather different. However, the 10-feet Creekton Sandstone which McKellar places in the Liffey Group is apparently very like the 5 feet of worm-cast sandstone at the base of the Woodbridge Formation in the Beaconsfield area. If this correlation is correct, then the Creekton Sandstone should probably be placed in the Woodbridge Formation in view of the probable disconformity at its base.

Garcia Formation (McKellar, 1957).—This formation is 10 feet thick and overlies the Woodbridge Formation extremely abruptly with 6 inches of coarse breccia at the base containing large, angular, faceted boulders in a sandy matrix. The breccia is consecutively overlain by 3 feet of poorly-sorted, erratic-rich sandstone, a 2-feet bed with fine, blue-grey sandstone laminae separating layers of bright yellow clay; 2 feet of blue-grey siltstone, and 3 feet of grey-white, worm-cast sandstone. McKellar (1957) includes in the base of the Garcia Formation horizons containing marine fossils but in the Beaconsfield area the base is taken at the base of the breccia overlying the fossiliferous Woodbridge Formation .

**Springmount Siltstone* (McKellar, 1957).—This formation is about 255 feet thick and, except for a 1-foot bed of hard grey-white siltstone 6 feet above the base, the formation consists of monotonous, grey-blue and light-grey, slightly micaceous siltstones becoming faintly pink towards the top. The formation is generally thinly-bedded, a shaley parting is commonly present, erratics are rare and generally well rounded, fossils are apparently completely absent.

Palmer Sandstone (McKellar, 1957; Wells, 1957).—At the top of the Springmount Siltstone at 774E-273N, a 6-inch bed of coarse grit and common, large, faceted pebbles abruptly overlies a limonite-stained surface of fine siltstones. It is probable that this represents a disconformity in the sequence. Overlying this basal grit are 6 feet of white quartz sandstones, poorly sorted and with fairly common though irregularly distributed erratics. Worm casts (?) are frequent and may be parallel or inclined to the bedding. They are commonly branching and often appear segmented. The sandstone is overlain by 6 feet of yellow-pink, sandy siltstone with shaley parting but lacking erratics and worm-casts. This, again, is abruptly overlain by 9 feet of massive white sandstone containing common grit and a few erratics.

Bowen's Jetty Sandstone.

The Bowen's Jetty Sandstone is defined as the formation of erratic-rich, poorly-sorted unfossiliferous sandstones and siltstones lying conformably above the Palmer Sandstone and below the Blackwood Conglomerate. The typical exposures occur in the vicinity of Bowen's Jetty 764E-290N, and on the eastern shore of Middle Arm.

* The Springmount Siltstone, Palmer Sandstone and Bowen's Jetty Sandstone have been grouped together and shown on Plate I as their Southern Tasmanian correlate, the "Ferntree Mudstone".

The formation is 400 feet thick and consists of sandstones and siltstones. The latter are generally blue-grey in colour and similar in lithology to the Springmount Siltstone. The sandstones vary somewhat but are commonly white or creamy coloured, poorly-sorted quartz sandstones, rich in erratics and lacking fossils. The formation corresponds in stratigraphic position to the Dry's Mudstone (McKellar, 1957) but is different in lithology.

Towards the base is an alternation of blue-grey non-fossiliferous siltstones and grey-white, erratic-rich, poorly-sorted sandstones containing many worm-casts. About 300 feet from the base sandstones are dominant and are commonly limonite-stained and contain limonitic concretions. Above these are 60-70 feet of sandstones containing common erratics, including gneiss, granite, several silicified tree trunks and a variety of quartzite and slate fragments. There are 4 feet of white shales immediately below the Blackwood Conglomerate.

Blackwood Conglomerate (McKellar, 1957).—Good exposures of this formation occur on the shore platform at 773E-284N. The formation is 2 feet thick and consists of a single bed of fine quartz conglomerate. The pebbles are sometimes up to 5 cms. long but more commonly are 2-5 mm. They are sub-rounded to well-rounded, poorly sorted, and include occasional slate pebbles, although the great majority are of clear, colourless quartz.

The base of the conglomerate rests very abruptly on a limonite-stained surface of a 4-feet shale bed at the top of the Bowen's Jetty Sandstone. It is probable that this surface is a disconformity. The conglomerate is overlain by carbonaceous quartz-mica sandstones of the Clog Tom Sandstone. It seems quite clear in this area that the Blackwood Conglomerate marks the stratigraphic break between the marine Bowen's Jetty Sandstone and underlying formations and the freshwater Clog Tom Sandstone and the overlying Triassic sandstones.

Clog Tom Sandstone

The Clog Tom Sandstone is defined as the formation of micaceous quartz sandstones overlying the Blackwood Conglomerate and considered to underly the Triassic Sequence. Typical exposures occur on the eastern shore of Middle Arm. The formation takes its name from Clog Tom Creek which flows into the south eastern corner of Middle Arm.

The thickness of the formation is unknown as it is faulted against the Triassic sandstones. Carbonaceous material, including leaves and twigs, is common but poor preservation prevented identification. The formation may be Permian or Triassic in age. Wells (1957) considered that a breccia apparently similar to the Blackwood Conglomerate marked the base of the Triassic Sequence, but McKellar (1957) recorded the Eden Formation resembling the Permian sediments from above the Blackwood Conglomerate and thus in a similar stratigraphic position to the Clog Tom Sandstone.

TRIASSIC SYSTEM.

The beds lying on the downthrown side of a fault in the north-eastern corner of the area are possibly Triassic in age. Their thickness is unknown but they probably conformably overlie the Clog Tom Sandstone. The beds consist of yellow sandstones, dominantly quartzose but with abundant mica; grit lenses are not uncommon, and grey shales, weathering pink, are also present.

Bedding is generally very irregular with current bedding, common scouring and deposition of clay pellets. Carbonaceous material is generally absent and no fossils could be found. The intrusion of the Triassic sandstones by the large dolerite mass to the east has produced only minor baking of the sandstone.

Jurassic System.

In the Beaconsfield area dolerite, probably Jurassic in age, invaded Palaeozoic (including Permian) and Triassic sediments. The major dolerite intrusion (on Long Point) is a discordant north-easterly dipping body which trends north-west parallelling the major Tabberabberan trends and most probably controlled by them. There is a fine-grained margin exposed at 771E-292N but the major part of the intrusion is medium to coarse-grained dolerite containing approximately equal proportions of zoned plagioclase (Ab_{65} An_{75} at the core to Ab_{85} An_{55} at the crystal edges), pyroxenes (augite and pigeonite), and mesotasis (fine-grained areas of chlorite, opaque oxides, quartz, apatite and feldspar).

Cretaceous System

No rocks which can definitely be assigned to the Cretaceous Period occur in the Beaconsfield area. However, it is possible that the ironstone surfaces, particularly on the ultrabasic complex, were formed during the Cretaceous or early Tertiary Periods. Extensive areas of ironstone gravel occur on the ultrabasic complex and the limits of this material are shown, as well as their indefinite nature will allow, on B. L. Taylor's (1955) map of the Anderson's Creek area. On Scott's Hill, Mt. Vulcan and Barnes' Hill occur thick deposits (around 50 feet) of concretionary limonite, haematite and magnetite resting on serpentinite containing common magnetite veinlets. These deposits have been described and their economic aspects discussed by Twelvetrees and Reid (1919) and Nye (1930).

The ironstone areas are at present being eroded by Anderson's Creek and it is likely they were formed before the Tertiary faulting at the northern end of Anderson's Creek. The rather great thickness of some of these ironstone cappings suggests a long period of weathering accompanied by little or no erosion.

Smaller areas of ironstone developed on the Caroline Creek Sandstone near Brandy Creek may be Cretaceous in age but are more probably Tertiary or Quarternary.

Tertiary System.

Although outcrop in the northern and north-eastern parts of the area is very poor, a considerable portion of the area is considered to be covered by Tertiary lacustrine sediments. In a quarry at 730E-275N thin-bedded, unlithified sandy clays, fine and coarse sandstones and thin grits dipping up to 32° N.E. unconformably overlie the Cabbage Tree Conglomerate. These in turn are overlain with slight unconformity by very coarse conglomerate consisting of well-rounded and generally well-sorted quartz and quartzite pebbles set in an abundant limonite-stained sandy matrix. This conglomerate, with interbedded sandy lenses, outcrops spasmodically over a rather wide area and seems to occur at a number of levels in the Tertiary sequence.

The deep lead at the foot of the eastern slopes of Cabbage Tree Hill contains varicoloured clays alternating with narrow bands of sand, grit and sandstone rubble to a depth of 364 feet (220 feet below sea level) as shown by a bore hole at 746E-255N (Scott, 1930). The continuation of the deep lead north and south of Beaconsfield cannot be traced definitely. The northerly continuation could underlie the Tertiary sediments and may in fact continue in any direction between north and north-east from a point near 740E-265N to join the present Tamar River in the vicinity of Beauty Point. The only part of the area south, west, or east of Beaconsfield in which pre-Tertiary rocks do not outcrop at heights above sea-level is the belt of Gordon Limestone west of Dally's Quarry and the belt of recent alluvium at the foot of Blue Tier. If the deep lead does continue through this area then in early Tertiary time, assuming the base of the deep lead to be at about 200 feet below sea-level, there must have been a 300-feet gorge with the eastern wall composed of Gordon Limestone on a slope greater than 45°.

The alternatives to this hypothesis would require the deep lead both to enter and leave the area in its north central part. Another possibility is that the "deep lead" is actually one of several very deep sink holes (360 feet in depth) in the Gordon Limestone at the foot of Cabbage Tree Hill.

At 742E-255N, on the slopes of Cabbage Tree Hill, unconsolidated sediments, believed to be Tertiary, and dipping at 10° north-east, occur at 300 feet. It is likely that the whole area east and north-east of Beaconsfield was once covered to a similar height with Tertiary lacustrine sediments. The surface probably sloped gently to the north-east and continued further to the south-west and west on the western side of Cabbage Tree Hill.

Tertiary Basalt.—In the northern part of the area basalt occurs as scattered outcrops between 744E-288N and 752E-299N. The basalt is 50-60 feet thick and the top is fairly constant in height at 190-200 feet. The base appears irregular but this is due to landslips rather than irregularities in the base of the flow itself. The basalt overlies Tertiary sediments, including limonitic sandstones with poorly preserved leaf impressions and is overlain by quartz gravels.

The basalt is massive, non-columnar and in thin section consists of about 45% plagioclase (labradorite Ab_{35} An_{65}), 15% olivine, 30% pyroxene and 10% opaque oxides (probably mainly ilmenite). The texture is porphyritic with three distinct size ranges. The olivine occurs in phenocrysts up to 2 mm. long, the labradorite as interlocking laths ½ mm. long and sometimes showing alignment due to flowage, the ilmenite as similarly sized irregular elongate grains and the pyroxene as tiny, irregular intergranular grains. There are also very small amounts of colourless, isotropic glass and some chlorite forming the very rare patches of mesostasis. The olivines show alteration to magnesite and serpentine.

Post-basaltic Gravels.—The post-basaltic white quartz gravels of the northern part of the area form a gently undulating surface falling from 430 feet at the south-western limit (715E-245N) to 200-250 feet in the northern part (745E-295N) and 100 feet in the north-western area (700E-295N) and (715E-295N). The gravels are variable in character but in general are only a thin veneer on underlying formations.

The angular, poorly-sorted gravels west of the concealed strike ridge of the Cabbage Tree Conglomerate near 717E-251N are considered to have been derived from this formation. The extensive belt of gravels between 717E-251N and the Cabbage Tree Conglomerate at 732E-272N probably has a similar origin. These gravels are dominantly angular with little evidence of transport and overlie a limonitic subsoil. In several places, e.g., 722E-259N, the gravel overlies a black peaty earth. In the vicinity of 732E-272N extensive removal of quartz gravel for building purposes has shown that the quartz gravels are only 2-3 feet thick and apparently have resulted here from weathering *in situ* and removal of fine material from the Cabbage Tree Conglomerate.

Near 721E-278N there are several horizons in the gravel containing quite large (3-6 inches) well rounded quartzite boulders—these appear rather like a shore line or storm beach deposit and are about 100 feet above sea-level.

In the northern area near 745E-295N the gravels may be up to 50 feet thick and vary from poorly sorted to well sorted, the latter increasing towards the top of the sequence. The lower gravels commonly have ½-1-inch pebbles in them but the higher gravels are finer grained and white quartz sand is present in a few areas. The sand grains are of milky-white quartz, generally sub-rounded to angular but showing evidence of water transport in being smooth and sorted.

Quaternary System

Recent Series.—Outcrop is generally very poor in the Beaconsfield area and areas of deep soil cover are extensive. The broad alluvial flats west of Cabbage Tree Hill and Blue Tier and also west of Blue Peaked Hill consist of grey soils containing occasional quartz or quartzite pebbles. Occasional thin beds of river gravel and conglomerate are present near some creeks, particularly Anderson's Creek.

PETROLOGY OF THE METAMORPHIC ROCKS.

The Settlers Metamorphosed Greywacke.

This rock, more resistant to weathering than the enclosing serpentinite outcrops on a number of hills in the northern part of the ultrabasic complex, including a north-east trending ridge at 703E-255N known as Settlers Hills. The rock is medium-grained, holocrystalline, dark to light-grey consisting predominantly of quartz, albite and biotite with lesser chlorite, muscovite and epidote. The proportions of the main constituents (particularly biotite) vary somewhat in different exposures but the rock in hand specimen is remarkably uniform. A well-defined schistosity is evident in some specimens but no bedding or sedimentary structures can be seen in the field.

Twelvetrees (1917) quoted the opinion of Dr. E. W. Skeats who examined thin sections of the rock and concluded "it was originally a rather coarse-grained sediment containing quartz, aluminous or argillaceous material and some partly decomposed feldspars". Reid (1919) favoured an igneous origin apparently on the evidence of the so-called aplites (albitites and gabbros) in the vicinity and on the massive, uniform nature of the rock. Taylor (1955) also called the rock a "syenite" and explained its origin by granitic magma intruding the pyroxenite, dissolving it in part and thereby increasing the magnesia and decreasing the silica content of the magma. He considered the schistose margins and massive centres developed in some of the bodies to be explained by continued intrusion of the magma after partial crystallization at the edges.

Taylor brought forward no petrographic evidence to support his hypothesis of solution of pyroxenite in a granitic magma. If such solution is possible and has occurred, then relict pyroxenes and partial stages in the process should be evident. The author has examined a number of slides (Nos. 8,168-8,174) from different masses of the greywacke, both near and removed from the contacts, and in none of these is there any evidence of the reactions which Taylor implied.

The author considers that the rock is a slightly metamorphosed and recrystallized greywacke composed of similar but variable quantities of plagioclase feldspar and quartzite grains in a matrix of clay and chloritic material with some biotite flakes. The clastic nature is shown in thin section by the quartzite grains which occur as sub-equidimensional, angular to sub-rounded grains generally ½-1 mm. in diameter and consisting of a number of irregularly intergrown crystals. Most quartzite grains show strain effects. The plagioclase occurs as rounded and sub-rounded grains, generally completely sericitized but in some places having a thin rim of clear albite. Clear fine-grained albite also occurs in small veinlets but this secondary albite was observed near the margin of the greywacke mass and not towards the centre. The secondary albite is probably derived from the ultrabasic complex and of the same origin as the albitite bodies to be discussed later. The original clastic plagioclase was probably not albite as clusters of epidote crystals within the sericitized grains indicate a more calcic variety. Relict zoning can often be seen. It cannot be said what proportions of the biotite flakes are clastic but many are bent, somewhat frayed, chloritised and commonly partially bleached.

In the centre of the larger bodies the thin sections show distinct clastic texture but towards the margins the clastic texture becomes less evident due to the coalescing of several sub-rounded quartzite grains into an enlongate oriented composite grain and to the growth of biotite and albite rims. Dimensional orientation of micas is readily evident although no petrofabric study has been made. Shear and crush zones are commonly developed.

To summarize briefly, the author considers that the eight separate bodies of metamorphosed greywacke have resulted from the deformation under

low or moderate temperatures of a greywacke sediment containing clastic quartzite, plagioclase (perhaps zoned oligoclase), biotite and clay material. Accessory minerals such as sphene, apatite, ilmenite and muscovite may or may not be clastic.

Accepting a sedimentary origin for these inclusions within the ultrabasic complex, there remains the problem of the age of the rocks. They could, perhaps, belong to the Precambrian basement and have been brought to their present level as solid inclusions within the ultrabasics. However, greywackes are common within the Cambrian System whereas the Precambrian rocks immediately west of Anderson's Creek consist of quartzites and quartz-sericite phyllites. It is considered more probable that the rocks are of Cambrian age and originally overlay the Cambrian sediments to the west of the ultrabasic complex.

Simmonds Hill Metamorphics.

Taylor (1955) first recorded the presence of these rocks but grouped them with the so-called "syenite" of Settlers Hills. On the crest and southwest slopes of Simmonds Hill (698E-224N) is surface float and sparse outcrop of a variety of rock types ranging from slates and rather soft, black, sheared fine sandstone to heavy, hard gneissic rock types. In thin section all of the rock types show evidence of strong deformation with mortar texture, dimensional grain orientation, compositional banding, strain shadows and bending and fracturing of the several minerals present.

Specimen 8,152d is distinctly banded with one band consisting of sericitised feldspar (probably albite) and quartz, another almost completely of quartz in mortar texture and others containing varying proportions of clinopyroxene (diopside), green hornblende and minor amounts of chlorite, biotite and opaque oxides. The grain-size is very variable.

Specimen 8,152c is similar but of finer grain and again consists of albite (some very clear and fresh, Ab_{95} An_5) quartz, diopside, grossular; lesser amounts of hornblende, sphene, and opaque oxides; and muscovite, apatite, tremolite and chlorite as accessory minerals. The grain size is again very variable but a distinctive feature is the presence of large grains of pyroxene poikilitically enclosing unoriented hornblende crystals. The hornblende has a similar relation to small muscovite, tremolite, &c., flakes.

Both rocks described above probably belong to the amphibolite facies; the texture is gneissic and they have apparently been formed under moderate to high temperatures and strong stress conditions. The nature of the original rock type is unknown.

Section 8,152b is a finely-banded, fine-grained amphibolite containing green hornblende (50%), quartz (20%), small colourless crystals which may be pyroxene, limonite and a fine-grained indeterminate matrix probably containing tremolite-actinolite, sericite and quartz. This was possibly subjected to slightly lower temperatures than the preceding examples.

The field and microscopic examination of these rocks shows that they are not "syenites" in any sense of the term but consist of low and medium grade metamorphic rocks possessing the common feature of very strong deformation effects. Mineralogical composition is very variable and little can be said regarding the original rock types except that they may have been members of the eugeosynclinal suite of rocks. The obvious agent of metamorphism is the ultrabasic complex which surrounds the metamorphic rocks on at least three sides. The deformation, like that of the Settlers Metamorphosed Greywacke, is probably due to differential movement between the ultrabasic rocks and the metamorphics. The cataclastic mortar texture of specimens 8,152c and 8,152d is an indication that some or all deformation occurred after the main crystallization of the metamorphics had ceased.

PETROLOGY OF THE IGNEOUS ROCKS.

Dally's Siltstone-Keratophyre Member

The keratophyre member of Dally's Siltstone outcrops quite strongly on a sharp terrace level from near 767E-234N to 778E-218N. In the field the rock is massive, although some exposures have a poorly-developed cleavage. There is no field evidence to decide conclusively whether the body is a sill or a lava flow. Some specimens are vesicular and the sediments below the keratophyre may be baked.

In hand specimen the rock is dark or light-grey with occasional patches of dark-green chlorite and common larger areas and veinlets of pale green epidote. Thin sections Nos. 8,150, 8,151, and 4,620 (1, 2, and 3) show that the rock consists of euhedral albite (Ab_{97} An_3), more or less sericitized, in a fine-grained matrix now apparently composed of chlorite, tremolite-actinolite, sericite and epidote. The albite laths are in some cases aligned as if due to flowage (4,620-2). Epidote may form up to 40% of the rock and generally occurs in medium and large-sized, irregular, composite grains commonly with a clear centre and a turbid, finer-grained margin.

The original rock contained some 10%-15% diopsidic or augitic clinopyroxene. This mineral has been partially or completely altered to pennine with lesser sphene, pale-green amphibole or biotite. The original clinopyroxenes were generally zoned and formed stubby, euhedral crystals now replaced by fine-grained chlorite in which relict zoning can be seen. Section 4,620 (2) shows very clearly the genetic relationships between the clinopyroxene, amphibole and chlorite (fig. 4).

The clinopyroxene is primary—it has a euhedral outline towards the matrix and is turbid, whereas the chlorite and amphibole are clear and fresh. The pale-green amphibole occurs as partly or completely formed diamonds with sides bounded by the amphibole cleavages. All the tiny diamonds of amphibole within the boundaries of the one pyroxene grain have exactly the same orientation. It is apparent that the crystallographic orientation of the pyroxene determines directly the crystallographic orientation of the amphibole and the amphibole is secondary. The chlorite appears to be completely random in orientation or else in a poorly-developed type of mesh texture. The most perfectly formed diamonds of amphibole occur

when completely surrounded by chlorite. Amphibole occurs within the pyroxene but in these areas is finer-grained and, although it tends to form diamonds, these are seldom well developed.

FIG.4:—RELATIONSHIP BETWEEN CLINOPYROXENE, AMPHIBOLE & CHLORITE IN THE KERATOPHYRE WITHIN THE DALLY'S SILTSTONE (SKETCHED FROM SECTION 4620(2).)

The following history of the rock is proposed to explain these observations. The primary clinopyroxene (augite or diopside) was zoned and had a number of irregular fractures crossing it. At some stage after initial crystallization, alteration to amphibole began and was localised firstly along the irregular fractures within the pyroxene and secondly in certain favourable zones, particularly the core of the crystal . The amphibole, as it formed, was rigidly controlled in orientation by the orientation of the clinopyroxene and tended to develop euhedral forms presumably because certain planes within the amphibole grew parallel to existing planes within the pyroxene. The amphibole developed more rapidly in certain zones so that well-formed euhedral crystals resulted in one part and tiny, poorly-formed crystals, still with the same orientation, developed in another. Had the physical conditions remained constant long enough the alteration of the euhedral clinopyroxene to euhedral amphibole could have continued to completion. However, as soon as the conditions changed significantly so that the favoured breakdown reaction was not pyroxene to amphibole but pyroxene to chlorite then the formation of amphibole presumably ceased.

In the specimens examined there is no evidence that the amphibole had any tendency to alter to chlorite. Rather, it seems that the relict pyroxene, not previously altered to amphibole, broke down directly to chlorite. This alteration was localised in the same areas in the pyroxene crystals as was the alteration to amphibole with the result that the well-formed amphibole crystals occur surrounded by the chlorite.

The keratophyre was originally a pyroxene andesite containing 10-20% of large, euhedral phenocrysts of clinopyroxene with 60-70% of smaller crystals of calcic plagioclase set in a fine-grained matrix of feldspar and pyroxene or amphibole. The pyroxene andesite has since been extensively altered, the calcic plagioclase being converted to epidote and albite and the pyroxene partially altering to amphibole but mainly to chlorite. Sericitization and growth of tremolite-actinolite wisps have occurred to a varying degree.

If this sequence of alteration of the clinopyroxene in the andesite is generally applicable, then an andesite with euhedral clinopyroxene crystals could conceivably alter to a rock containing clear euhedral amphibole. If the original pyroxenes were aligned by flowage then the secondary amphiboles would be similarly aligned. This may explain the origin of the hornblende andesites from the Langdon River, West Coast of Tasmania, about which there is controversy as to the primary or secondary character of the hornblende phenocrysts (Scott, 1954).

The Cambrian Ultrabasic Complex.

The exposed length of the ultrabasic complex occurring on the western margin of the area is 4¾ miles but since the belt passes underneath subhorizontal Permian sediments at both its northern and southern ends its actual extent is not known. The greatest width of the belt is 1½ miles. The complex consists of three distinct though related types, namely.—

(*a*) The ultrabasic pyroxenite and serpentinite;
(*b*) The gabbroic rocks, including the rodingites;
(*c*) The albitite suite.

The age of the complex is established as Upper Cambrian. It is unconformably overlain by chromite-bearing Cabbage Tree Conglomerate and this formation (?) disconformably overlies the lower Upper Cambrian Dally's Siltstone in the eastern part of the area. The Dally's Siltstone does not contain chromite grains and is considered to be part of the greywacke sequence that is intruded by the ultrabasic rocks at Anderson's Creek. The intrusion of the complex is considered to coincide with the cessation of greywacke sedimentation and the (?) disconformity below the Cabbage Tree Conglomerate and Blyth's Creek Formation. The complex is apparently located on a hinge zone between the stable Precambrian block (Asbestos Range) to the west and the Cambrian and Ordovician-Silurian sedimentary basin to the east.

(*a*) *The Ultrabasic Rocks.*—The ultrabasic rocks form about 80% of the complex. No unaltered rock could be found as, in all specimens examined, serpentization has occurred to some extent. The only rocks seen which were not completely serpentinized were pyroxenites.

A typical pyroxenite (8,179a) consists of enstatite grains of average diameter about 3 mm. Alteration to a finely-fibrous mixture of actinolite and serpentine occurs along the edges and cleavage traces of the enstatite. Occasional crystals of clinopyroxene and rare crystals of pale-green, apparently primary, amphibole occur interstitially. There is no evidence of the presence of olivine. Specimen 8,179b differs from the preceding example in containing about 50% clinopyroxene (diallage ?) with rare bastite pseudomorphs after orthopyroxene, set in a matrix of fine-grained

antigorite serpentine. The rock is apparently banded as part of the section contains bastite pseudomorphs to the exclusion of elinopyroxene. If the antigorite matrix was originally olivine then the rock could be classed as harzburgite interbanded with wehrlite: if the antigorite has replaced orthopyroxene then the rock contained bands of orthopyroxenite and websterite. Specimen 8,179e is completely serpentinized and contains 10% brown chromium spinel in mesh texture serpentine showing partial alteration to antigorite. If mesh texture serpentine can only form from olivine and not from orthopyroxene then the original rock was a dunite. However, no relict olivine now remains.

Several rather unusual serpentinites were examined in thin section. Specimen No. 8,175 from 713E-223N is a pale greenish-pink serpentinite with small veinlets of bright green garnierite (identified by X-ray diffraction) and occasional dark-brown grains with adamantine lustre. These were identified by an X-ray diffraction photograph as chrome-picotite. The serpentinite has a mesh texture in which one set of opposite sides of the mesh is strongly developed while the second set is poorly developed or absent. The garnierite occurs as thin colloform veinlets with a central filling of opaline silica. The garnierite and opal are low temperature deposits perhaps due to downward-moving ground waters. There is no sign of any primary nickel mineral in the specimen.

Specimen No. 8,180 from 7,090E-2,645N contains red-brown euhedral amphibole pseudomorphs in a very fine grained matrix of chrysotile serpentine (Film I, Appendix). The amphibole pseudomorphs consists of a chlorite or serpentine mineral heavily flecked with (?) magnetic dust although in half of the thin section these pseudomorphs have pennine rims or are completely replaced by irregular clear pale-brown pennine. The original rock type is problematical as the only rocks seen in the area which contain euhedral hornblende are the hornblende gabbros from 694E-277N.

The greater part of the serpentinite appears to be of bastite and mesh texture type and antigorite is not common. However, at 691E-270N antigorite serpentinite (Specimen 8,178) occurs adjacent to gabbroic rocks and metamorphism by these may account for its formation as Wilkinson (1953) and Hess, Dengo and Smith (1952) have shown that antigorite forms under conditions of low-grade metamorphism.

(*b*) *The Gabbroic Rocks.*—The gabbroic rocks outcrop as small bodies within the complex but are particularly common along the western margin. This western belt is shown in fig. I as a continuous body but outcrop is limited and the true nature is probably a large number of small dykes similar to those exposed near 698E-242N.

The gabbros show considerable variation, especially in their degree of alteration but, with the exception of the distinctive hornblende gabbro (Specimen 8,153) from 694E-277N, the primary rock appears to have been a medium-grained pyroxene gabbro. Clinopyroxene (probably augite) is present as relict cores showing partial alteration to chlorite or tremolite-actinolite. No primary or secondary feldspar was found in the normal gabbros but the nature of the secondary minerals is variable.

Specimen 8,158 (695E-255N) is largely composed of a finely-granular mass of (?) clinozoisite with occasional patches of serpentine and chlorite and grains of partially uralitized elinopyroxene. Picotite is an uncommon accessory mineral. Specimen 8,154 (6,945E-2,550N) is divided into two rock types by a linear zone (1.5 mm. wide) of crushing and granulation. One rock consists of about 60% of zoisite and 40% of green actinolitic amphibole and was probably originally a gabbro. The other contains approximately equal proportions of anhedral augite and zoisite and was also originally a gabbro.

Specimen 8,157 (698E-242N) is a garnetized gabbro or rodingite (Benson, 1913) and contains clear, anhedral crystals of clinopyroxene (augite and possibly pigeonite) in a matrix of fine-grained, colourless, clear garnet, serpentine and chlorite. The clinopyroxene is commonly embayed and replaced by a garnet-chlorite mixture. No feldspar is present although indistinct linear structures in the garnet may be relict cleavage. Specimen 8,155 (6,965E-2,380N) is a similar rock in contact with serpentinite. The gabbro consists of relict clinopyroxene with lesser chlorite, serpentine and clinozoisite and about 60% of fine-grained isotropic garnet which seems to have replaced plagioclase feldspar and partially replaced the clinopyroxene. The contact is very sharp but irregular with the irregularities more convex into the serpentinite. There is no shearing parallel to the contact although several shears intersect it. The contact is largely one of turbid garnet against serpentinite but there are occasional clinopyroxene crystals and one enstatite crystal on or near the contact . There is no obvious change in grain size of the gabbro at the contact and no contact metamorphic effects within the serpentinite. This latter feature shows that the gabbro did not intrude the serpentinite following serpentinization as serpentine is unstable above temperatures of the order of 500°C. (Bowen and Tuttle, 1949) and alters to forsterite and tale, whereas the gabbro would be at a temperature of the order of 800-1,000°C.

It is considered that the features of the contact and the dyke-like character of the gabbros are consistent with the intrusion of gabbro into the ultrabasic rock (enstatolite ?) and later serpentization of the ultrabasic rock. Probably as part of the same process the gabbro was altered to a garnet, chlorite, serpentine rock containing some residual pyroxene. The small crystal of enstatite on the contact, partly within the gabbro and partly within the serpentinite, is probably relict from the enstatolite and preserved from serpentinization by its partial inclusion within the gabbro.

The hornblende gabbro outcropping near 694E-277N is a leucocratic rock consisting of varying proportions of deep-brown hornblende and altered feldspar. In some specimens the hornblendes are aligned, possibly by flowage but more probably by shearing during crystallization. The hornblende shows slight alteration to chlorite but the feldspar has generally altered to saussurite with ghosts of zoned and cleaved feldspar crystals. Albite is

present as rims to some feldspar grains and is probably secondary.

Specimens 8,156, 8,159 (6,915E-2,700N) occur in the western gabbro belt but are more basic types. In thin section the rocks are medium-grained and contain about 75% of pyroxene with augite dominant and lesser hypersthene. About 25% of the rock consists of fine-grained indeterminate material which may be secondary after feldspar. These rocks occur within 10 yards of the contact with Cambrian sediments and are separated therefrom by antigorite serpentinite (Specimen 8,178).

Within the ultrabasic complex are a number of bodies of very coarse-grained (1-5 cms.) pegmatitic gabbros. A small body (Specimen 8,195) occurs at 699E-271N but the main outcrops are a series of small bodies trending approximately north-south in the south-eastern corner of the complex. No exposures of the contacts with the enclosing ultrabasics were observed. The rocks are extensively altered, many of them to rodingites, but primary constituents were evident in sections 8,195, 8,198, 8,197 (south-eastern corner). In section 8,195 relict clinopyroxene occurs and the optical and X-ray data identify it as a calcic variety, possibly diopside (Film IV, Appendix). A similar clinopyroxene occurs as cores in secondary uralitic amphibole in section 8,198. Section 8,197 differs from the two preceding examples in that it contains 60-70% of deep red-brown primary hornblende in crystals up to 5 cm. long. There is no evidence of primary clinopyroxene and the hornblende shows only slight alteration to chlorite thus contrasting quite sharply with the alteration of the clinopyroxene in Specimen 8,198. The interstitial feldspar has been completely altered to fine-grained secondary calcium silicates.

From the examination of the limited number of specimens collected it appears that the pegmatitic gabbro suite includes rocks containing primary brown hornblende and altered feldspar which seem to differ only in grain size from the hornblende gabbro near 694E-277N. However, the pegmatitic gabbro suite also includes rocks with primary clinopyroxene and these show a similar degree of alteration to the pyroxene gabbros and rodingites of the western marginal belt. In many of the strongly altered pegmatitic gabbros it is not possible to say whether pyroxene or hornblende was the primary mineral but in view of the relatively slight degree of alteration of the hornblende gabbro from 694E-277N and of the pegmatitic hornblende gabbro from the south-eastern corner of the complex it is possible that the hornblende gabbros are a later feature. They may have intruded along similar channels to the earlier pyroxene gabbros, but at a later time, so that they were not subjected to the same strong alteration that produced the rodingites.

(c) *Alteration Processes in the Pegmatitic Gabbros.*—In the extensively altered gabbros, particularly from the south-eastern area, the breakdown of the feldspar appears to have been the first alteration process. In section 8,193 (699E-271N) the feldspar altered to a fine-grained, turbid material ("saussurite"). In section 8,195 the feldspar has altered, apparently directly, to a fine-grained turbid mass of grossular. An X-ray powder photograph of this material confirms the identification as grossular and not hydrogrossular (Appendix).

The breakdown of feldspar to "saussurite" and grossular was accompanied by changes in the pyroxene and amphibole, although these seem to lag behind the changes in the feldspar. The diopsidic pyroxene has been altered to an amphibole (tremolite-actinolite) and this mineral in some cases (section 8,198) has been altered to a pale-brown fibrous mineral which may be a calcic chlorite of the clintonite group. This mineral is rimmed by pennine containing inclusions of clinozoisite or epidote. In section 8,195 the secondary amphibole and sometimes the primary pyroxene appear to have been altered directly to chlorite containing small grains of sphene and garnet.

The most advanced stage in the breakdown of the original pegmatitic gabbros is shown by section 8,193. This rock is a rodingite and consists of fine-grained white grossular containing small patches (10%) of pennine. There is almost no trace of the original igneous texture in this rock. In all these rocks, assuming that the original feldspar was a calcic plagioclase, then the soda content of this feldspar has been completely removed. It certainly cannot be observed in a mineralogical sense in the chlorite-grossular rocks but chemical data have not been obtained to confirm the extent of this change. In these rocks there appears to have been introduction of lime and perhaps of alumina and water and removal of soda and perhaps of magnesia and iron.

Sections 8,194, 8,199, and 8,196 are of rock types which probably result from some change in physical conditions on the end product (section 8,193) of the breakdown processes. Section 8,196 has some areas of chlorite and turbid garnet very similar to section 8,193, but also has veins and patches of chlorite and pink vesuvianite, the latter being commonly euhedral. The associated chlorite is well crystallized and quite distinct from the secondary pennine. Section 8,199 also shows development of vesuvianite in veins, as small crystals in chlorite and as clear grains surrounded by turbid, colourless garnet.

A further stage in the generation of new minerals is shown by section 8,194. The grossular has almost all altered to vesuvianite and clinozoisite and instead of areas of secondary chlorite there are euhedral and subhedral crystals of diopside, vesuvianite and (?) pennine in a ground mass of nearly isotropic serpentine.

In section 8,198 the areas of turbid "saussurite" often contain shadowy spherulites of prehnite. All gradations between vague suggestions of these forms in the "saussurite" and perfectly clear prehnite spherules may be seen in the section and it is inferred that this series represents arrested stages in the growth of prehnite from saussurite. Associated with the prehnite are small grains of clinozoisite—these are especially apparent at the centre of a vein of prehnite showing comb structure.

(d) *The Albitite Suite.*—Bodies of albitite and related rocks are common within the ultrabasic complex, especially around 695E-275N. The bodies

are generally very small (1-10 yds. diameter) and seem to be dyke-like or sub-circular in form. The albitites are included amongst the rocks which B. L. Taylor (1955) mapped as aplites, but this group also included gabbroic rocks.

The albitites commonly show several types of alteration, but specimen 8,187 is only slightly affected. This rock is medium to coarse grained (0.5-3 mm.) and composed of interlocking, anhedral albite (Ab_{98} An_2) and orthoclase microperthite crystals. The identification of the latter is not certain, but untwinned grains with patchy extinction forming 10-15% of the rock may be microperthite. Sphene occurs as uncommon subhedral and euhedral crystals interstitial towards the albite. Finely-fibrous serpentine and tremolite-actinolite form 10% of the rock and are considered to be a replacement of the feldspar.

Sections 8,188a and 8,188b are similar to 8,187, but contain only about 60% feldspar with 25% antigorite and 15% tremolite-actinolite. The feldspar is of two types, albite (Ab_{98} An_2) and an orthoclase microperthite very rich in the albite molecule occurring in similar proportions. The microperthite has a variable 2V* (72°-86°), gave a negative result for the stain test for potassium using hydrofluoric acid and sodium cobaltinitrite solution and shows very strong exsolution of albite in veinlets and orientated crystals. These factors indicate a very high ratio of albite to orthoclase in the original microperthite.

The finely-fibrous antigorite and tremolite-actinolite commonly embay the feldspars along curved boundaries, sometimes completely separating parts of optically continuous feldspars. There is no trace of any pre-existing mineral from which the tremolite-actinolite and antigorite could have been derived. In some cases the ferromagnesian minerals enter the microperthite along the site of veinlets of albite and on the small scale the boundaries of the feldspar are invaded irregularly by tiny needles of antigorite and sometimes by tremolite-actinolite laths. These features of the mineral boundaries strongly suggest that the ferromagnesian minerals have replaced the feldspar and the rocks show arrested stages in the basification of an albitite with soda, potash and alumina being replaced by magnesia, lime and, perhaps, iron.

In the area near Frenchman's Quarry (694E-280N) albitite and an amphibole-bearing rock occur in intimate association so that in hand specimen it cannot be said which rock intrudes the other. Only one thin section (No. 8,190) was cut from these rocks but this shows a coarse-grained, very pure albitite (Ab_{98} An_2) in contact with a rock consisting of amphibole (almost colourless tremolite-actinolite) and varying proportions of large and small albite grains. Small amounts of quartz, calcite, zoisite and sphene are also present. The albite commonly shows strain shadows, bent cleavage and other evidence of strain.

The albitite patches are crossed by narrow, linear cracks, varying in width but containing small angular grains of albite in the narrower portions and increasing amounts of zoisite and calcite in the wider portions. The calcite and zoisite have crystallized in their present position within the veins, but the albite has not done so. This is apparent from the angular, "clastic" form of the albites as opposed to the crystalline intergrowths of zoisite and calcite. Several smaller veinlets in the albitite are probably prehnite but these do not contain the albitite fragments. The calcite-zoisite-albite veins have their origin in the amphibole rock. The contact of this rock with the albitite is a larger scale example of that described for the calcite-zoisite veins. The albitite is fragmented along irregular cracks, fragments detached and apparently absorbed into the amphibole rock; they decrease in number away from the contact and some fragments are embayed by tremolite-actinolite.

The amphibole shows no trace of the former presence of any pyroxene; it is clear and fresh, fibrous or platey and varies greatly in grain size. In the general area near Frenchman's Quarry are large veins of amphibole asbestos (tremolite-actinolite) and it is considered that this material and that in the thin section have been formed by hydrothermal alteration of the associated ultrabasic and basic rocks of the immediate vicinity.

The textural relationships of section 8,190 strongly suggest that the tremolite-actinolite rock was in a fluid state or contained a very high percentage of fluid material. The fluid tremolite-actinolite rock invaded and included the albitite as xenoliths and ultimately seems to have replaced it with the resultant complete loss of the albite molecule. If this replacement occurred, then it is practically identical to that previously described (Nos. 8,188a and 8,188b) except that in the former case there was no evidence that the ferromagnesian-rich material ever became fluid and capable of mechanically fragmenting the albitite.

Specimens Nos. 8,189 and 8,191 were collected near 6,960E-2,715N, where there are a number of small bodies of albitite in serpentinite. In hand specimen, No. 8,189 appears to be a graphic intergrowth of quartz (40%) and feldspar (60%). The feldspar is partially sericitized albite (Ab_{98} An_2) and occurs in large (2-5 mm.) anhedral grains. The quartz is clear and fresh but has an extremely irregular habit rather like recrystallized mortar texture. The quartz occasionally shows euhedral outlines against the feldspar and also sometimes against or inside other quartz grains. There are small pale-green needles, probably chlorite or serpentine, within the quartz.

The quartz generally embays the feldspar, though often the boundaries are linear but rough. In these cases the linear boundaries are usually parallel to or perpendicular to feldspar cleavage or twinning. In some cases optically continuous feldspar grains are completely separated by irregularly crystallized quartz. The author considers that the quartz has been introduced into a normal, crystallized albitite and has replaced part of the albite, giving an irregular intergrowth similar to the intergrowth between albite and antigorite-amphibole previously described.

* Determined on the universal stage by Dr. E. Williams of the Geology Dept., University of Tasmania.

An additional feature favouring the introduction of silica is the presence of talc in the immediate vicinity. Talc is rare in the complex and in this area could be due to the reaction:—

SERPENTINE + SILICA → TALC

$$H_4Mg_3Si_2O_9 + 2SiO_2 \rightarrow H_2Mg_3Si_4O_{12} + H_2O$$

(Turner & Verhoogen, 1951, p. 495.)

If we accept the silicification of the albite then this will also explain the formation of talc in the neighbourhood.

Specimen 8,187 is a hard, blue-grey fine-grained rock possessing a pronounced lineation. In thin section it is found to consist of albite (Ab_{95} An_2) and quartz (about 30%) in a well-developed mylonitic texture. The albite shows dimensional orientation and the quartz a parallelism of stringers and lenses. The quartz is very fine-grained and irregular in crystal habit, whereas the albite has the appearance of fragmented grains. It is considered that this rock was originally a silicified albitite similar to specimen No. 8,189 but that later strong shearing stress has destroyed the original texture and established a mylonitic texture.

Although no actual contacts have been observed, the field occurrence and the lack of apparent thermal metamorphic effects within the albitites indicate that these are late intrusions, probably post-dating both the gabbros and the ultrabasics. The albitites are more widely distributed than the basic rocks but there is no obvious spatial relationship between the two rock types. There is, however, a striking chemical relationship since the albitite contains the components (albite, orthoclase) which should be present in normal gabbroic rocks (1.5-2% Na_2O) but which have apparently been removed from the altered gabbroic rocks of this area.

Pure albite cannot exist in molten form below 1,100°C. and the presence of small amounts of potash is not likely to lower this melting point appreciably. If the albite "magma" was originally at such a temperature, then metamorphic effects should be very evident at the contacts with the serpentinite. The author has observed no such effects and it is inferred that the bodies have resulted from deposition from a hydrothermal solution.

Joplin (1956) discussed the relationship and composition of a number of Australian albitites and soda-aplites and connected them genetically with potash granites. However, potash granites do not outcrop within at least a 10-mile radius of Anderson's Creek and, other than the albitites, there is a complete absence of granitic intrusives in the Beaconsfield area. Surface float of granodiorite aplite occurs at 7,045E-2,670N, but these are boulders derived from the basal Permian sediments and are not intrusive into the ultrabasic complex. The rock differs very distinctly from the albitites in thin section although it is similar in hand specimen. Zoned oligoclase (55%) varies from Ab_{85} An_{15} in the cores to Ab_{90} An_{10} at the crystal edges and occurs in a eutectic intergrowth with quartz (40%). Biotite, muscovite and sphene are minor accessories. The distinct differences in feldspar composition, presence of biotite and particularly the textural relationships of quartz and feldspar, strongly suggest that the Devonian granite and granodiorite intrusions of north-eastern Tasmania are in no way related to the albitite bodies within the ultrabasic complex.

(e) Rocks of Uncertain Affinities.—There are a number of rock types of unknown origin which occur near the western margin of the complex. Specimen 8,161 was collected near 692E-273N and probably is that which B. L. Taylor (1955) called "hornblende granite". Other than the fact that it occurs on or very near the contact with the Cambrian sediments, its exact relationship to the other rock types is unknown due to lack of outcrop and to its similarity in hand-specimen to some of the gabbroic rocks. The rock consists of green hornblende, albite and quartz with accessory biotite, chlorite, sphene, magnetite and limonite. The texture varies rapidly, one area consisting of fine-grained, oriented hornblende grains with albite and small amounts of quartz, whereas the greater part of the section consists of large hornblende crystals poikilitically including albite and quartz. There is about 40% of quartz in these areas and the quartz generally shows wavy extinction.

The rock is distinctly different from other members of the gabbroic suite in that it contains virtually unaltered albite, no trace of calcic plagioclase, abundant quartz and a green rather than brown hornblende. The rock is a metamorphic one and is probably derived from contact metamorphism of Cambrian sediments by the complex. It resembles some of the rocks of the Simmonds Hill Metamorphics.

Specimen 8,162 was collected at 695E-253N near an obscured contact between gabbroic rocks and the Settler's Metamorphosed Greywacke. The rock is very heterogeneous. One portion of the slide is rich in tremolite-actinolite with small amounts of biotite and areas of unidentified fine-grained material. Away from this area there is a gradual increase in the quantity of fine-grained quartz present until the rock finally consists of some 70% quartz with small intergranular amphibole (?) crystals and unidentified fine-grained material. Feldspar was not observed in this section.

(f) Conclusion.—The Anderson's Creek Ultrabasic Complex is composed largely of partially or completely serpentinized pyroxenite (enstatolite) with lesser peridotite and clinopyroxene-rich rocks. Medium-grained and pegmatitic gabbros occur within the complex and some of these are strongly altered to yield rodingites. Hornblende gabbros do not appear to be as strongly altered and are probably later than the pyroxene gabbros. Small bodies of albitite within the complex are of hydrothermal origin. It is possibly significant that the alteration of the gabbros to rodingites requires a removal of Na, K and possibly Al and Si and the addition of Ca and possibly Mg and Fe. The components removed are those present in the albitites and there is a similar chemical transfer in the albitites themselves, since some examples show replacement of feldspar (Na, K, Al, Si) by antigorite and tremolite-actinolite (Mg, Ca, Fe). It is possible that these effects are features of the one process—migration of hydrothermal fluids initially saturated with Mg, Ca, and Fe, but preferentially

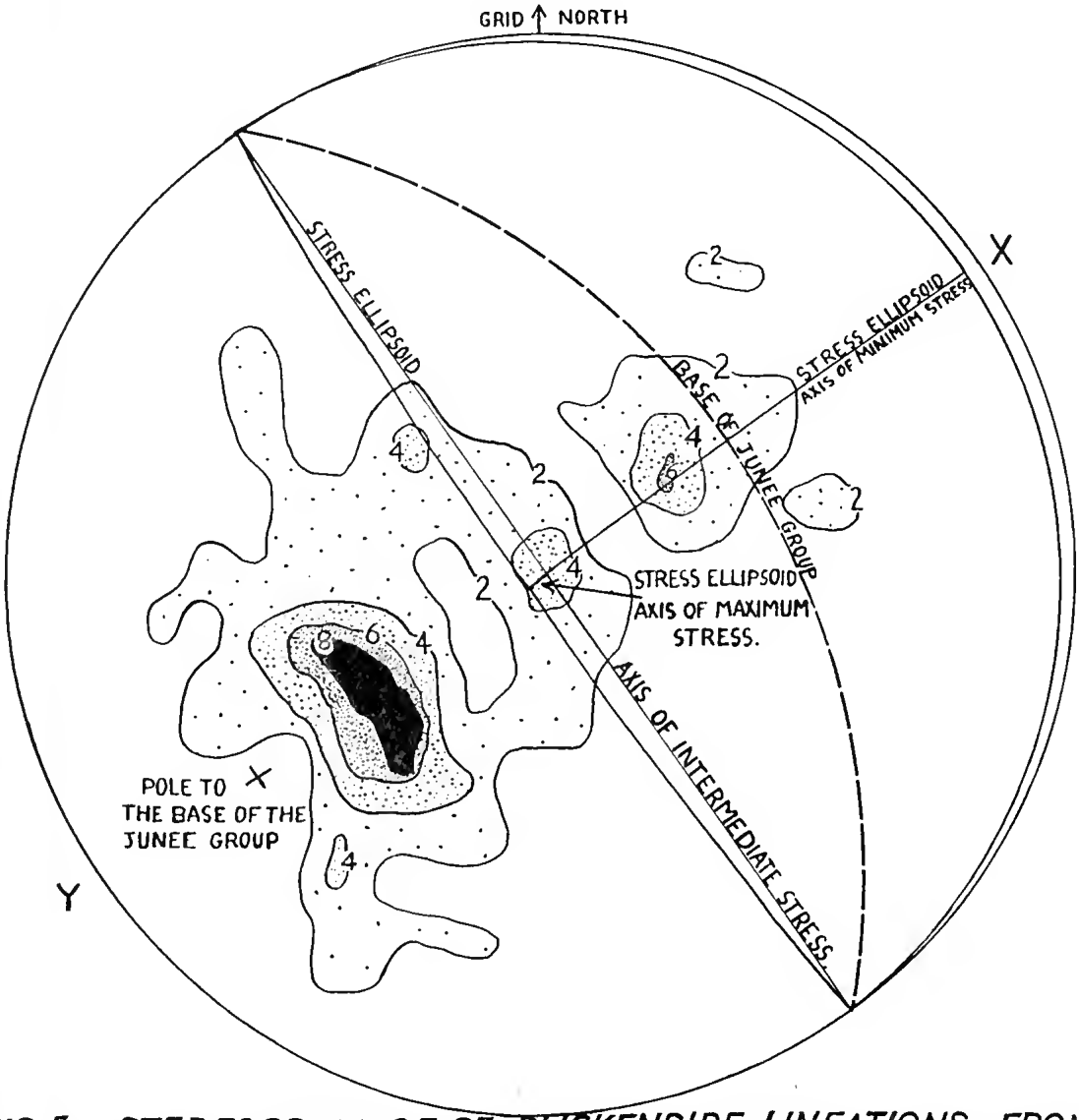

FIG. 5:— STEREOGRAM OF 87 SLICKENSIDE LINEATIONS FROM THE QUARRY AT 7065E 2595N ANDERSONS CREEK ULTRABASIC COMPLEX.

(CONTOUR INTERVAL 2, 4, 6 & 8% PLOTTED ON THE LOWER HALF OF A SCHMIDT EQUAL AREA NET)

exchanging these for Na, K, Al, and Si when favourable rocks are encountered and locally depositing the latter components as small vein or dyke-like albitite bodies.

The complex intruded the Cambrian greywacke sequence in the Upper Cambrian and caused local contact metamorphism, particularly of a number of inclusions within the complex. Serpentinization of the complex is incomplete. Turner and Vehoogen (1951, pp. 251-2), in discussing the problem of serpentinization of ultrabasic intrusives arrived at the favoured hypothesis that the water required for serpentinization of an ultrabasic magma is derived from extraneous sources, generally from surrounding geosynclinal sediments undergoing compaction, metamorphism, &c., or else from intrusive bodies of granitic magma. With the lack of any evidence of the latter source in the Beaconsfield area and the presence of a considerable thickness of Cambrian sediments, serpentinization by waters derived from the sediments may be applicable in the Anderson's Creek Complex.

STRUCTURAL GEOLOGY

The Ultrabasic Complex.

The ultrabasic complex contains a variety of minor structures but these have not been mapped in much detail.

(a) Slickensides and Shears.—Shearing within the serpentinite has quite commonly produced linear zones of schistose serpentinite. A few of these zones are shown as "sehistosity" on the accompanying map but no regional picture of their distribution and direction can be given. Along the eastern margin of the complex the schistosity has been mapped in a few localities:—

Locality.	Schistosity.	Contact (strike and dip of basal Cabbage Tree Conglomerate at the nearest point).
7,175E-2,115N	10°/75° W	355°/70° E
7,190E-2,370N	330°/60° SW	to the north-east 340°/80° E to the south-east 20°/steep E
7,200E-2,425N	340°/80° W	340°/80° E
7,090E-2,640N	320°/80° NE	315°/55° NE
7,070E-2,650N	355°/70° E	315°/55° NE

Although the data is meagre it shows a parallelism or near parallelism in strike of the shear zones in the serpentinite and the base of the Junee Group.

Along the western margin of the ultrabasic complex, schistosity in the serpentinite is rarely well developed. However, near 697E-238N shear zones are very common and again tend to parallel the boundary of the complex which in this area is bordered by Precambrian rocks, the usual Cambrian sediments being absent. In the northern part of the complex near 693E-271N common shear zones strike into the contact of the complex and the Cambrian sediments, but it may be noted that they trend almost parallel to the strike of the basal Junee Group where this is exposed some ¾-mile E.S.E.

The slickenside surfaces of the serpentinite only become apparent where quarries have been opened. Eighty-seven slickenside striation directions from the Main Quarry at 7,065E-2,595N have been plotted on the lower half of a Schmidt net (fig. 5). The diagram shows one major (8%) and minor maximum (6%). The major maximum includes striae varying in plunge from 220° to 250° E of N and in dip from 55° to 62°. The minor maximum includes striae plunging 50° E of N at 62° to 68°. The base of the Junee Group, which outcrops ¼-mile away, strikes at 325° E of N and dips at 55° NE at its nearest point. As can be seen from fig. 5, the pole to the base of the Junee Group and the two maxima in the striations all lie on the same vertical great circle.

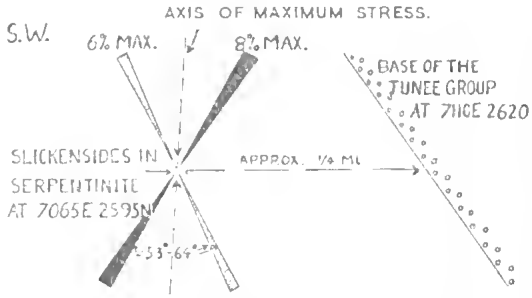

FIG 5A:—DIAGRAMMATIC SECTION IN THE PLANE X–Y OF FIG. 5

The author considers that these relationships are not coincidental and that there is a genetic connection between the disposition of the shears and slickenslides of the serpentinite and the base of the Junee Group.

(b) Banding.—Outcrops of the serpentinite commonly show a well-developed banding made apparent by differing susceptibility to weathering of the bands. The bands differ irregularly in thickness and commonly continue for distances over 10 yards. When a fresh surface is exposed the bands are generally not visible or else are seen as faint differences in colour or texture of the serpentinite. The bands are generally straight or gently curving, but a number of examples of folded bands were seen. In one example the two bands consist of oriented pyroxenite and gabbro respectively, and in this case the banding may be due to multiple intrusion. No detailed study of the directions of banding was made but the few examples mapped appear to be rather random.

(c) Oriented Pyroxenites.—In five seperate areas around 705E-263N partially serpentinized pyroxenites show a distinct lineation due to the alignment of ortho-pyroxene crystals with their cleavages lying parallel or sub-parallel. The examples mapped, all in a 10-chain square, show a variation in strike from east-west to north-south and have dips of 0°, 20°, 30°, 40° and 50°. No structural significance of their directions is apparent and it is unlikely that they are tectonic lineations but are due to flowage of the original magma. This would occur if the pyroxenite "magma" was actually a crystal aggregate or a crystal mush of pyroxene crystals. One contact of pyroxenite and altered gabbro showed alignment of the pyroxene crystals parallel to the contact, possibly indicating that the pyroxenite was the later intrusion of the two.

THE TYENNAN OROGENY.

The Junee Group has been shown to lie unconformably on the Cambrian ultrabasic complex in the western part of the area but probably disconformably on Cambrian sediments in the central and eastern parts of the area. The movements occurring during the Cambrian Period which resulted in the emplacement of the ultrabasic complex are correlated with the Tyennan Orogeny which brought about the cessation of Cambrian sedimentation elsewhere in Tasmania. Other than the emplacement of the ultrabasic complex and uplift of the Precambrian Asbestos Range Block to provide source material for the Cabbage Tree Conglomerate, the Tyennan Orogeny has had no other apparent effects in the area. The folding shown in fig. 3 in the Cambrian sediments near the complex is completely hypothetical.

THE TABBERABBERAN OROGENY.

The major folding of the area occurred in post-Ordovician and pre-Permian times and is considered to be due to the Devonian Tabberabberan Orogeny—the major Palaeozoic Orogeny in Tasmania. Fig. 3 shows the possible distribution of facies of the Junee Group and the relationships of the underlying Cambrian rocks before the effects of the Tabberabberan Orogeny. The thickness of beds formerly overlying the Junee Group is, of course, completely unknown. The two features of greatest importance structurally in this reconstruction are considered to be the thickness (3,000 feet) of Cabbage Tree Conglomerate developed in the central-south portion of the area and the presence of the ultrabasic complex between the Precambrian massif to the west and the column of Junee Group sediments, particularly the Cabbage Tree Conglomerate, to the east.

At the onset of the Tabberabberan Orogeny the area was compressed in an E.N.E. to W.S.W. direction. The axis of maximum compression of the regional stress ellipsoid is placed in this direction simply because this is perpendicular to the axes of the folds developed. Similarly, the axis of intermediate stress was directed N.N.W. to S.S.E. and the axis of minimum stress was vertical. Under this stress field folds of the Junee Group developed. The thick mass of Cabbage Tree Conglomerate on the southern edge of the area probably acted as a minor stable block, forming in itself an asymmetrical anticline facing west but causing the structures to the east and west to wrap around it slightly. The major N.N.W. faults parallel the fold trends and these are considered to have developed from the earliest stages of folding as steep reverse faults, perhaps actually the sheared-out steep limb of an asymmetrical west-facing anticline. This type of folding and faulting is typical of the Owen Conglomerate in other areas of Tasmania.

There is very little minor folding, but smaller folds do occur near the Moonlight Mine (738E-258N) and again near 765E-235N. Axial plane cleavage is well developed in the Cambrian Ilfracombe Slate and Dally's Siltstone and in the Leonardsburgh Siltstone.

Transcurrent faulting also developed during the Tabberabberan Orogeny and is localised in the central and west-central parts of the area. The major faults occur near 721E-239N and in a group at the north end of Cabbage Tree Hill. They are dextral transcurrent faults and have horizontal displacements of 1,000 feet or less. There may also be a major Devonian fault near 730E-277N striking almost east-west but concealed under more recent deposits. It is possible that the main Tertiary fault near Leonardsburgh has followed this previous fault line. If the fault exists then the drag of the Cabbage Tree Conglomerate at 730E-275N may indicate that it is a sinistral transcurrent fault. These transcurrent faults are consistent with the orientation of the regional stress ellipsoid suggested above. They are inclined at less than 45° to the axis of maximum compression and have the right sense of movement on them to correspond with the theoretical shear planes of the stress ellipsoid.

There remain two minor faults which do not fit well into the categories described above. The first of these is a faulted synclinal axis at 736E-261N with west side upthrown, and the second occurs between Blue Tier and Cabbage Tree Hill. This fault seems to be a pivotal fault about a point near 761E-233N. The northern wall of the fault has moved in a clockwise manner relative to the southern wall, so that the Junee Group on Cabbage Tree Hill generally dips more steeply to the north-east than that on Blue Tier.

The behaviour of the ultrabasic complex under the conditions of regional stress was rather different. It may be noted that the transcurrent faults do not apparently pass across the complex but seem to either originate in it or die in it. Carey (1953) discussed the behaviour of serpentinite under stress conditions and concluded (p. 83):—

> "In an environment of appreciable stress-difference maintained for a period longer than the rheidity for the serpentine, the serpentine would yield as a rheid. The associated rocks would probably behave as rheosolids yielding by both deformation and fractures".

Carey suggested that serpentinite, under shallow orogenic conditions, has a rheidity of some tens of thousands of years.

The parallelism of shears near the base of the Junee Group to the strike of the sediments and the striking relationships between the slickensides of the Main Quarry and the strike of the base of the Junee Group at its nearest point, argue that there is a genetic connection between the movement of the serpentinite and the attitude of the basal Junee Group. The slickensides are grooves formed on movement planes bounding blocks in which there is no obvious deformation—no apparent schistosity or other fabric. This observation argues that the serpentinite has behaved in the manner of a brittle material, i.e., stress has been applied at a sufficiently rapid rate to require release by fracture and, once formed, these fractures have become the locus for continued movement. If the serpentinite has behaved in the manner of a brittle material, at least as far as the fractures in this area go, then it should be possible to apply the stress theory to deduce the axes of stress .

Fig. 5 shows that there are two maxima in the orientation of the slickenside striations. If deformation has occurred according to the stress theory, then these two maxima should correspond to the movement directions on the theoretical shear planes and so we can deduce the position of the axis of maximum stress, since this bisects the acute angle between the maxima. The axis thus deduced plunges 235° at 87°. The axis of intermediate stress is horizontal and striking at 325° and the axis of minimum stress plunges 55° at 3°. These axes and the planes perpendicular to them are shown on fig. 5.

The intermediate axis of the local stress ellipsoid corresponds very well with the intermediate axis of the regional stress ellipsoid, but the maximum and minimum axes of the local stress ellipsoid are almost exactly at right angles to the equivalent axes of the regional ellipsoid. At first sight these features would seem incompatible, but the author considers that under the geological conditions operating each is a necessary consequence of the other.

The regional stress field is considered to operate at some depth. The ultrabasic complex at 1-2 miles depth would be subject to the regional stress field and would be at an appreciably higher temperature than that part of the complex unconformably below the Junee Group, since the sediments in this area were probably less than 2,000 feet thick. Under these conditions the serpentinite at depth would have a lower rheidity than that beneath the Junee Group.

Accepting Carey's (1953) conclusion that the rheidity of the serpentinite would be lower than that of the enclosing sediments (Cambrian sediments and Cabbage Tree Conglomerate on the east and Precambrian quartzites on the west) then it must follow that the serpentinite would tend to intrude diapirically along a direction corresponding to the axis of minimum stress of the regional stress ellipsoid. This is valid at depth but the higher levels of the serpentinite have a higher rheidity and will not readily yield and move vertically. This serpentinite will rapidly become subject to a stress field due to the diapiric intrusion from below and this stress feld will be at right angles to the regional stress field. Provided the diapiric intrusion is rapid enough or the rheidity of the upper levels high enough, the serpentinite in these upper levels will behave as a brittle material and deform according to the stress theory applied to a stress ellipsoid with maximum and minimum stress axes at right angles to the equivalent axes of the regional ellipsoid.

It is considered that the demonstration at the Main Quarry that the local ellipsoid is at right angles to the regional ellipsoid can be accepted as showing that there has been diapric intrusion of the ultrabasic complex in the Tabberabberan Orogeny. The established relationships of the shears and slickensides to the strike of the basal Junee Group and not apparently to the Cambrian contacts shows that this diapiric intrusion occurred in the Tabberabberan and not the Cambrian Tyennan Orogeny. One important implication of the diapiric intrusion of the complex during the Tabberabberan Orogeny is that it is not necessary to "unwind" the folding of the Junee Group on the east of the complex to arrive at the pre-Devonian structure in the Cambrian and Precambrian rocks. If this were done in the normal way, then the complex would be seen as a sill-like body in a flatly-dipping Cambrian sequence.

Tertiary Faulting.

Tensional faulting occurred in the Beaconsfield area following the intrusion of the Jurassic dolerite and preceding the deposition of the Tertiary sediments. This faulting probably occurred, by analogy with the rest of Tasmania, during the early Teritary period.

The major faults trend in a north-west direction and thus generally follow the main Palaeozoic trends. In the south-west corner of the area a major fault downthrowing to the south-west brings Permian sediments into contact with the Cambrian rocks. There is no evidence of Permian float on Blue Peaked Hill and, if the base of the Permian is extrapolated from the eastern part of the area using a rather constant 10° dip, then a throw of about 2,000 feet is indicated on this fault. Using this latter figure the structure in the underlying Junee Group also becomes quite easy to reconstruct (pl. I). The fault runs north-west into the ultrabasic complex but cannot be traced further.

The inferred fault east of Leonardsburgh downthrows Permian Quamby Siltstone against undifferentiated lower Palaeozoic sediments. The throw may be 200-400 feet or greater. This fault is shown to swing to the north-east at the northern edge of the area, but this could not be proven and the fault could continue north-west. The other major north-west fault follows an irregular course along the eastern shore of Middle Arm. The throw on the fault cannot be estimated but is unlikely to be over 300-400 feet. The fault zone is exposed at several places along the shore line and varies from a 2-feet zone without exposure but lacking drag dip on either side, to a 10-feet zone in which large (10-feet) vertical blocks of sediment occur. There are lesser Tertiary faults trending nearly east-west; the most important of these occur near Leonardsburgh and again cannot be traced into the ultrabasic complex.

Carey (1947) has established the presence of a fault trough paralleling the Tamar Valley near Launceston and caused by early Tertiary faulting. These faults strike at 320°, which is nearly parallel to the main Tertiary faults of the Beaconsfield area. 30 miles to the north, and those west of the Tamar downthrow to the north-east. In the Beaconsfield area the only fault downthrowing towards the north-east between the Asbestos Range and the Tamar River is the rather less important fault east of Middle Arm. On the other hand, the major Tertiary fault in the area (in the south-west corner) has a throw of about 2,000 feet down to the south-west. The problem of the north-west extension of the Tamar trough must await the examination of the area between Beaconsfield and Launceston and also the area north-east of Beaconsfield.

SUMMARY AND CONCLUSIONS.

In the Beaconsfield area the Palaeozoic Era opened with Cambrian sedimentation of eugeosynclinal type upon a folded basement of Precambrian quartzites and phyllites. The total thickness of the sediments is unknown but towards the top there are over 2,000 feet of slates and greywacke sandstones. Sedimentation changed from greywacke type in the central part of the area to sub-greywacke type in the eastern part of the area. Vulcanism with extrusion of andesitic lava occurred during the Middle Cambrian in the eastern part of the area. The source from which the sediments were derived is unknown.

Sedimentation in the western part of the area was brought to a close in the Upper Cambrian Period by the intrusion of ultrabasic and basic rocks. This was a complex intrusion of ultrabasic (largely pyroxenite) and basic members with intermittent and localised serpentinization of the ultrabasic members, and saussuritization, garnetization and prehnitization of the basic members. Small bodies of albitite of hydrothermal origin were emplaced, possibly as a complementary process to the alteration of the gabbros and ultrabasics.

The intrusion of the ultrabasic complex and any concomitant folding apparently did not extend further east, as the Ilfracombe Slate shows no effects of two orogenies and disconformably or conformably underlies the Junee Group. Similarly, there is structural conformity between the Dally's Siltstone and the Junee Group. However, the age of the Dallys' Siltstone at a few hundred feet below the top of the formation is upper Middle or lower Upper Cambrian. The basal Cabbage Tree Conglomerate cannot be dated in this area, but the overlying Caroline Creek Sandstone is Lower Ordovician in age. It is possible that there was a period of the late Cambrian time in which there was no deposition. The rather sudden change from greywacke or sub-greywacke type sedimentation of the Cambrian System to the orthoquartzite suite of the Junee Group suggests a break in the sedimentation sequence due to orogenic action.

The Junee Group sedimentation probably continued throughout the Ordovician Period and may have extended through the Silurian and Lower Devonian Periods but evidence of this has been removed by subsequent erosion. The Junee Group shows rapid variation in thickness and apparently also in facies. The author's reconstruction of sedimentation conditions requires a prominent ridge or stable block in the position of the Asbestos Range with a thick lens of conglomerate and sandstones immediately to the east. These were followed vertically by and also change along strike into the Gordon Limestone which in turn passes into Mathinna-type sub-greywacke sediments. The limestone also undergoes a facies change to the west and north of the main (Flowery Gully) deposits and its place is taken by black siltstones and slates (Leonardsburgh Siltstone).

The period of sedimentation was brought to a close by the Middle Devonian Tabberabberan Orogeny. In the Beaconsfield area this caused shallow orogenic folding without igneous activity (with the exception of quartz and gold-quartz veining). The regional stress ellipsoid was oriented with the axis of maximum stress nearly horizontal and striking E.N.E.-W.S.W. and with the axis of minimum stress vertical. The effect of the regional stress field was to fold the Junee Group into a series of asymmetrical anticlines and steep thrust blocks with the thick mass of Cabbage Tree Conglomerate in the central south of the area acting as minor stable block. The stress field caused diapiric intrusion of the ultrabasic complex into the basal Junee Group which unconformably overlies it. Transcurrent faulting also occurred during the Tabberabberan Orogeny and seems to have been concomitant with the folding.

Following the Tabberabberan Orogeny the area was subject to peneplanation during the Carboniferous Period. This process was not complete by the beginning of the Permian sedimentation so that the basal Permian beds were deposited on a surface on which the more resistant rock types stood out as low ridges. The Permian sedimentation was dominantly marine and evidence of contemporaneous glacial activity in nearby regions is found in the general abundance of erratics. There are several probable disconformities in the sequence—at the top of the Liffey Sandstone, base of the Garcia Formation, base of the Palmer Sandstone and the base of the Blackwood Conglomerate—and on two horizons the conditions of sedimentation became terrestrial. These two horizons are the Liffey Sandstone in the middle part of the sequence and the Clog Tom Sandstone at the very top of the Permian sequence. During the Permian Period, abundant marine life in the area was restricted to several horizons in the middle part of the sequence (Darlington Limestone to Woodbridge Formation inclusive).

Little is known about the Triassic sequence of the area but quartzose and micaceous sandstones of freshwater origin were deposited. During the Jurassic Period discordant dolerite intrusions were emplaced and probably gave the post-Jurassic landscape considerable relief. The limonitic and haematitic surface-capping on parts of the ultrabasic complex and possibly on other rock types may have formed during the Cretaceous Period.

In the early Tertiary Period, tensional faulting with strong control by the Palaeozoic structural trends was followed by lacustrine sedimentation and then by minor extrusion of olivine basalt. After the basalt extrusion the Tertiary rocks formed a depositional surface at a height now 300 feet above sea level. It is probable that this surface extended over the whole of the area with the exception of a number of island-like ridges including Cabbage Tree Hill, Blue Tier, Blue Peaked Hill, the ridges of Cabbage Tree Conglomerate on the east side of the ultrabasic complex, several hills within the complex, and the Asbestos Range to the west.

At this stage there was a rise in sea level to about 300 feet above the present level. The above-mentioned high areas remained emergent

as islands. The dominant rock type of these islands was Cabbage Tree Conglomerate and within this formation the components most resistent to abrasion, &c., were quartz veins and vein quartz pebbles. As a result, the washing to and fro in the shallow sea eliminated almost all eroded material except the vein quartz pebbles. These remained as the extensive, blanket-like vein quartz gravels.

The removal of the blanket-like quartz gravels and the underlying Tertiary laeustrine sediments from most of the southern and eastern parts of the area in ensuing periods of lower sea level has onee more exposed the Palaeozoic formations.

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APPENDIX I.

X-Ray Diffraetion Data.

The specimens were X-rayed, using a Unicam 3 em. radius powder eamera. Allowanee was not made for film shrinkage in obtaining the following patterns:—

Film I.

Mesh texture serpentine from matrix of specimen 8,180:—

Relative Intensity.		d-Spacing.
10	S (sharp)	7.16
6	D (diffuse)	4.64
10	S	3.56
7	D	2.54
4	S	2.05
½	S	1.95
9	S	1.55
1	S	1.50

A eomparison with Franeis (1956) and Whittaker & Zussman (1956) shows that the material is chrysotile and not antigorite and, further, is probably dominantly orthoehrysotile.

Francis, G. H., 1956.—The Serpentinite Mass in Glen Urquhart, Inverness-shire, Scotland. *Am. J. Sc.*, Vol. 254.

Whittaker, E. J. W. and Zussman, J., 1956.—The Characterization of Serpentine Minerals by X-ray Diffraction. *Min. Mag.* Vol., XXXI, No. 233, pp. 107-126.

Film II.

Pale green vein mineral from specimen 8,175:—

Relative Intensity.		d-Spacing.
10	D (diffuse)	10.82
8	S (sharp)	4.54
2	D	3.20
½	(spots) S	3.05
6	D) Edge of a	(2.62
5	D (broad band	) 2.48
½	S	2.30
1½	S	1.72
9	S	1.53
4	D	1.31

The mineral shows excellent agreement with garnierite (A variable hydrous nickel magnesium silicate).

Film III.

Dark-brown, isotropic and sub-translucent mineral from specimen 8,175:—

Relative Intensity.		d-Spacing.
2	S (sharp)	4.73
4	S	2.91
10	S	2.49
5	S	2.07
1	S	1.69
7	S	1.60
8	S	1.47
1	S	1.08

The mineral is certainly a chromium containing spinel and is probably chrome-picotite (Mg, Fe) O (Cr, Al)$_2$ O$_3$). However, the pattern differences between chrome-picotite, chromite (FeO (Cr, Al)$_2$ O$_3$) and nickel chromite (NiO Cr$_2$ O$_3$) are very slight. The optical properties (dark, translucent, brown colour) also favour chrome-picotite.

Film IV.

Primary pyroxene from pegmatitic gabbro (Specimen 8,195):—

Relative Intensity.		d-Spacing.
1	S (sharp)	6.91
1	D (diffuse)	4.68
3	S	3.53
3	S	3.22
10	S	3.00
9	S	2.52
2	S	2.31
5	D	2.13
3	D } Broad band	2.04
3	D }	2.01
5	S	1.84
6	S	1.75
7	S	1.62
7	S	1.43
3	S	1.33
5	S	1.28
4	S	1.08

The pattern has been compared with standard (card index) patterns for diopside and augite. The standard patterns show sufficient differences to be distinct from one another and the pattern above is in much better agreement with diopside than with aguite. However, it is not known how much slight variations in the chemical composition of augite control the X-ray pattern and data is as yet too meagre to be able to deduce the composition of a clinopyroxene from its X-ray diffraction pattern. All that can be said at present is that the X-ray diffraction pattern above agrees very well with that given for a diopsidie pyroxene of composition:—

53.88% SiO_2, 25.35% CaO, 16.95% MgO, 2.20% FeO, 1.28% Al_2O_3, 0.28% Fe_2O_3, 0.19% MnO, 0.04% TiO_2, and 0.00% Cr_2O_3.

Film V.

Secondary garnet from Specimen 8,195:—

Relative Intensity.		d-Spacing.
10	S (sharp)	7.02
5	S	4.62
5	S	3.50
80	S } Broad band	3.01
80	S }	2.94
100	S	2.62
10	S	2.40
10	S-D (diffuse)	2.30
20	S-D	2.15
60	S	1.91
50	S	1.70
70	S	1.63
80	S	1.57
20	S	1.47
35	S	1.32
50	S	1.29
5	S	1.26
2	S	1.19
50	S	1.11
30	S	1.08
20	S	1.05
30	S	0.96

The pattern above is very similar to the standard pattern for grossular. It is quite inconsistent with the pattern for hydrogrossular given by Scott (1951, p. 127). There is a consistent tendency for the lines of the above pattern to have a slightly lower d-spacing than those given for grossular. The patterns or almandine and pyrope have analagous lines to grossular but with distinctly lower d-spaeings. It is probable that the slight consistent discrepancy between the above pattern and the standard grossular pattern is due to a larger amount of Mg or Fe replacing the Ca in the isomorphous garnet series

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Locality Index.

Locality	Lat. (S)	Long. (E)
Anderson's Creek	41° 10′	146° 47′
Asbestos Range	41° 06′	146° 40′
Barnes' Hill	41° 12′	146° 46′
Beaconsfield	41° 11′	146° 48′
Beauty Point	41° 09′	146° 48′
Blue Peaked Hill	41° 14′	146° 47′
Blue Tier	41° 14′	146° 50′
Blyth's Creek	41° 12′	146° 20′
Bowen's Jetty	41° 9′	146° 50′
Brandy Creek	41° 12′	146° 48′
Cabbage Tree Hill	41° 11′	146° 48′
Clog Tom Creek	41° 12′	146° 52′
Dally's Quarry	41° 12′	146° 49′
Flowery Gully	41° 15′	146° 50′
Ilfracombe	41° 8′	146° 48′
Langdon River	41° 59′	145° 31′
Launceston	41° 26′	147° 5′
Leonardsburg	41° 13′	146° 47′
Long Point	41° 8′	146° 51′
Middle Arm	41° 14′	146° 51′
Moonlight Mine	41° 12′	146° 47′
Palmer River	41° 47′	146° 59′
Settlers' Hills	41° 10′	146° 47′
Swift's Jetty	41° 9′	146° 51′
Tamar River }	41° 4′	147° 45′
Tamar Valley Estuary }		
Tasmania Gold Mine		146° 48′
West Arm		146° 48′

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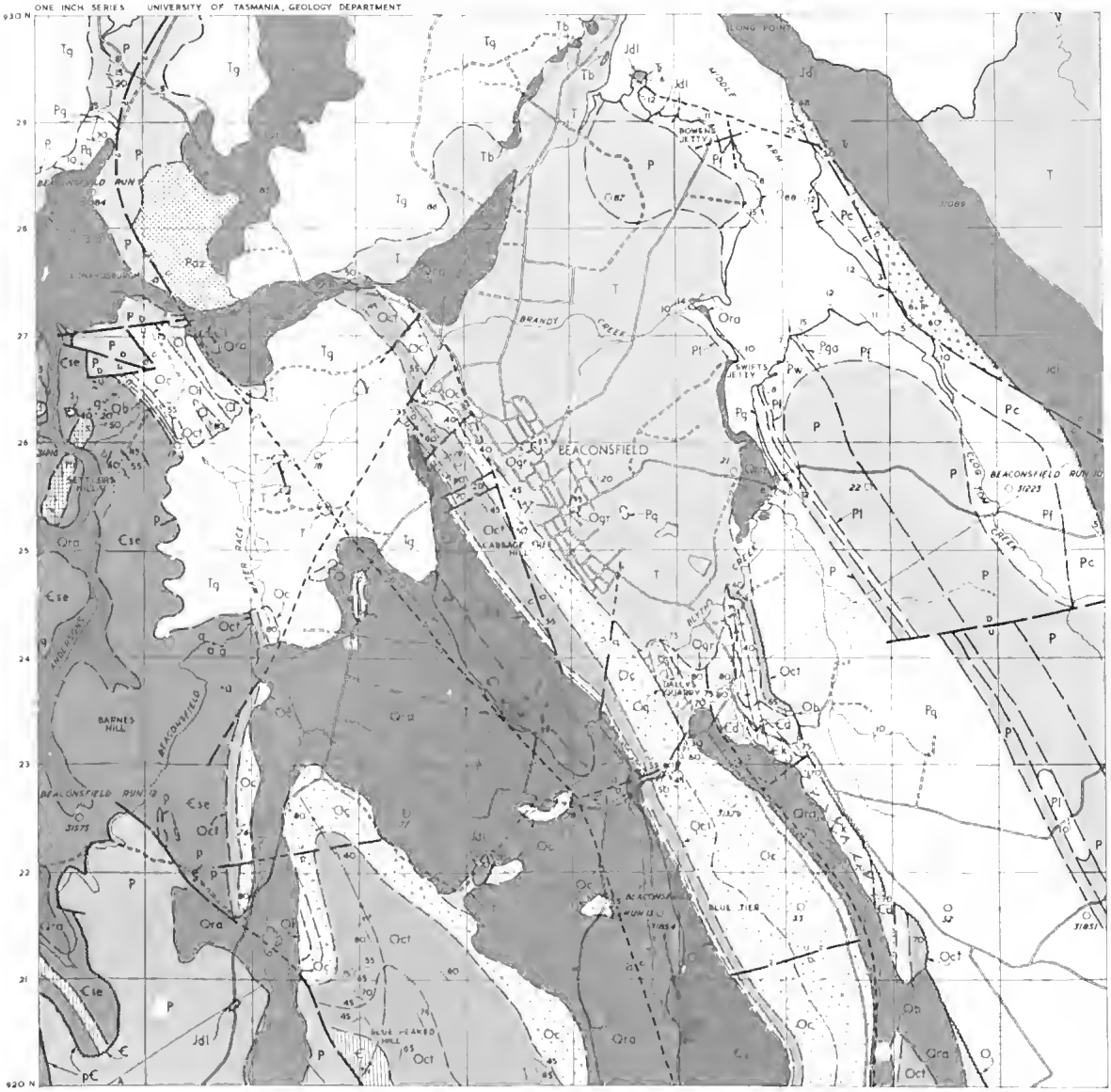
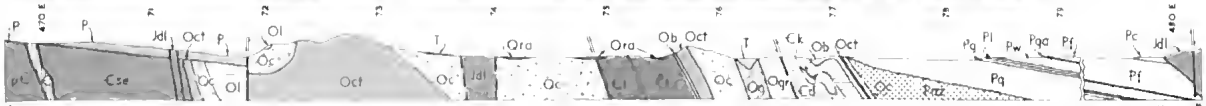
BEACONSFIELD

4792





LEGEND

Quaternary System
RECENT SERIES
Qrg ALLUVIUM

Tertiary System
Tg POST BASALTIC GRAVELS
T UNDIFFERENTIATED CLAYS SANDS AND CONGLOMERATES

Triassic System
Tc UNDIFFERENTIATED SANDSTONES

Permian System
Pc CLOG TOM SANDSTONE
Pf FERNTREE MUDSTONE
Pga GARCIA SANDSTONE
Pw WOODBRIDGE GLACIAL FORMATION
Pl LIFFEY SANDSTONE
Pq GOLDEN VALLEY GROUP
Pq QUAMBY SILTSTONE
P UNDIFFERENTIATED

Ordovician System
Ogr GRUBB BEDS
JUNEE GROUP
Og GORDON LIMESTONE
Ol LEONARDSBURGH SILTSTONE
Oc CAROLINE CREEK SANDSTONE
Oct CABBAGE TREE CONGLOMERATE
Ob BLYTHS CREEK FORMATION
O UNDIFFERENTIATED

Cambrian System
Cd DALLYS SILTSTONE
ILFRACOMBE SLATE
UNDIFFERENTIATED

Lower Palaeozoic
Paz UNDIFFERENTIATED

Precambrian
pC UNDIFFERENTIATED

METAMORPHIC ROCKS
SETTLERS METAMORPHOSED GREYWACKE

IGNEOUS ROCKS
Tertiary System
Tb BASALT
Jurassic ? System
Jdl DOLERITE
Cambrian System
Cse SERPENTINITE AND PYROXENITE
AEkV KERATOPHYRE
P Cambrian ? a ALBITITE
g GABBRO & DOLERITE
p GABBROIC PEGMATITE

Igneous Boundaries
IGNEOUS CONTACT
DISCORDANT DOLERITE CONTACT

SCHISTOSITY
LINEATION - ORIENTATED PYROXENITE
BANDING IN SERPENTINITE

SCALE

Compilation from Aerial Photographs
Base Map by courtesy of the Forestry Commission, Hobart
Origin of co-ordinates 400000 yds West and 1800000 yds South of True Origin of Zone 7 of the International Grid

KEY MAP SHOWING MAGNETIC DECLINATIONS 1957
SECULAR VARIATION 7 MINS PER ANNUM

MAPPED AND COMPILED BY

GEOLOGY OF BEACONSFIELD

SHEET 4792

STRATIGRAPHY

System	Group	Formation	Lithology	Thickness (in feet)
Quaternary			River terraces and alluvium	?
		Erosion with minor eustatic movements		
Tertiary			Post-basaltic Quartz Gravels	up to 50
			Basalt flow	50-60
			Lacustrine sediments	Variable, up to 600
		Tensional Faulting		
Jurassic			Dolerite intrusions	
Triassic			Lacustrine quartz, mica sandstones	?
Permian		Clog Tom Sandstone	Lacustrine sandstone	?
	Ferntree	Blackwood Conglomerate	Conglomerate	2
		Disconformity		
		Bowen's Jetty Sandstone	Sandstone and siltstone	400
		Palmer Sandstone	Sandstone	21
		Disconformity ?		
		Springmount Siltstone	Siltstone	255
		Garcia Sandstone	Sandstone and basal breccia	10
		Disconformity ?		
		Woodbridge Glacial Formation	Fossiliferous sandstone and siltstone	70
		Liffey Sandstone	Graphitic & carbonaceous sandstone	10
		Disconformity ?		
	Golden Valley	Swifts Jetty Sandstone	Fossiliferous sandstone	50
		Darlington Limestone	Limestone	4
		Quamby Mudstone	Siltstone	up to 850
		Major Unconformity—Tabberabberan Orogeny		
Silura—Ordovician		"Grubb Bed"	Sandstone & Siltstone	?
Ordovician	Junee Group	Gordon Limestone	Limestone	Variable 0-650
		Leonardsburgh Siltstone	Siltstone	Variable 950-0
		Caroline Creek Sandstone	Sandstone	750
		Cabbage Tree Conglomerate	Conglomerate	Variable 20-2900
		Blyths Creek Formation	Sandstone, Limestone	100
		Ultrabasic Intrusion, Local Unconformity in the West, Probable Erosion and Disconformity in the East		
Cambrian		Dolly Siltstone	Siltstone & Keratophyre	1100+
		Ilfracombe Slate	Slate	1600+
		Major Unconformity		
Precambrian			Quartzites & quartz sericite schists	?

STRUCTURAL GEOLOGY

Post-Ordovician (Tabberabberan) orogenic movements with the maximum stress directed to the WSW resulted in asymmetrical folding, steep thrusting and transcurrent faulting of the Lower Paleozoic sediments. This stress field also caused diapiric cold movement of the previously emplaced ultrabasic complex.

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